

HEALTH TRANSITION SERIES No. 2 (Vol. II)

What we know about

# H

# Health Transition:

The cultural, social and  
behavioural determinants of health

*Edited by*

*John Caldwell, Sally Findley, Pat Caldwell, Gigi Santow,  
Wendy Cosford, Jennifer Braid & Daphne Broers-Freeman*



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Volume II

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## Chapter 25

# Roots of primary health care institutions in Indonesia

Terence H. Hull

The last century has been remarkable for the large and rapid decline in global mortality, and the consequent improvement of the expectation of life virtually everywhere. Where rates of infant mortality had been uniformly above 100 per 1,000 live births in developed countries, and 200 or 300 per 1,000 in colonies in the mid-19th century, by the 1970s rich countries had rates below 20 per 1,000 and many poor countries had achieved rates below 100. The reasons for sustained mortality decline have been a matter for debate for many years. Medical professionals involved in the development of health care have claimed that advances in medical technology, and particularly the development of an effective pharmacopoeia against infectious diseases, are the key elements in the decline. McKeown (1979:78) has systematically queried this notion and argued instead that the most important influence on mortality was improvements in nutrition. In addition, he contends, the improvement in conditions of hygiene was responsible for around a fifth of the reduction of the death rate in Britain between 1850 and 1950, but this was a product of the technological improvements of piped water, enclosed sewers, and other modifications in the environments in which people lived. While this was a 'revisionist' perspective, it is interesting to note that W.R. Aykroyd, the Director of the Nutrition Research Laboratory of South India had much earlier contended:

one finds that, in a strange manner, diseases which have been ascribed to this or that parasitic or microbic agent simply disappear as a result of a little more food of the right kind to eat (Haynes, 1938:342).

Reduced to the most simple proposition, the opposition of 'medical technology' and 'environmental and nutritional conditions' has come to dominate much of the debate over the determinants of mortality decline. Evidence marshalled from the historical experience of Europe has been used to justify varying strategies for improving the expectations of life in developing countries today. Commentators have gone so far as to argue that investments in health care programs are of little use compared to the promotion of revolutionary changes in conditions such as land tenure arrangements. In contrast many national health plans confine investments to modern technologies in urban hospitals, ignoring the obvious nutritional and sanitary needs of poor rural populations.

This paper argues that the current debate is misguided in creating such dichotomies, and harmful in diverting attention away from the complementary nature of economic and medical measures required to address the health needs of people in developing nations. In essence different types of 'medical' interventions, ranging from high-technology orientations of large urban hospitals to low-technology as well as broadly-based public health programs based in communities, are dual aspects of a health care culture which evolves in response to challenges of illness and the responses of various healers. The case to be examined is the evolution of public health programs in the Netherlands East Indies (which became, after 1950, the Republic of Indonesia). The specific focus is on the role of



the Rockefeller Foundation to promote an educational approach to hygiene, and the contrasting authoritarian approach of the Dutch colonial government. The political conflicts between these two institutions in the period up to the Second World War left indelible impressions on the public health establishment and the medical profession in Indonesia which persist to the present day. Yet the conflict, so full of passion, was based on the false dichotomy between medical technology and environmental improvements. Then, as now, there was a need for both approaches to address the public health problems of the majority of Indonesians, and members of the medical profession had and have a crucial, though not exclusive, role to play in both areas.

### **The Rockefeller Foundation in Java**

Dr Victor Heiser visited Java regularly in the two decades between 1915 and the time of his retirement from the Rockefeller Foundation in 1934, but in all those visits he never lost his disdain for the Dutch nor gained an understanding of the Javanese. The original purpose of his missions was to negotiate a program of assistance in the field of hookworm control. To carry this out he utilized the services of the US Consul and the US Rubber Company to arrange transport and appointments. On his first visit in March, 1915 his strategy for approaching the government was simple. First, he poked around some of the slum areas of Batavia getting a feel for the sanitary conditions, then he met with some of the medical personnel in the government laboratory to learn of their activities in promoting hygiene. On his third day in Java he went, 'arrayed in a redingote, heavy trousers, stiff shirt, patent leather shoes, [and] silk hat' to meet the Governor-General in Buitenzorg [Bogor], there to explain the work of the International Health Commission of the Rockefeller Foundation, and request assistance in setting up a campaign against hookworm. In Heiser's words, the eradication of hookworm was important for the 'lever which it gave toward other health reforms'. In response, the Governor-General 'expressed great interest in the manner in which the International Health Commission was going about tropical health problems' and indicated that he would want to discuss these issues with his Chief Medical Officer.

Following an interview of half an hour, which included discussions of public health in the Philippines, and the difficulties of the war then raging in Europe ('from the standpoint of hard suffering neutrals'), Heiser emerged with a promise of a letter of introduction to the Chief Medical Officer, and an agreement that if the latter so recommended, the Governor-General would provide a government physician to assist any Commission the Foundation might send to investigate hookworm in the Netherlands Indies. The promised letter arrived at Heiser's hotel two hours later (Heiser, 1915:44-64).

Two days later, as he was leaving Batavia for Singapore, Heiser noted in his diary that in the health field with 'educational work just beginning, the favourable attitude toward it, and the general desire to reorganize, which is only held in check by the annual deficit, looks as if it would be a wonderful field for us in this country' (Heiser, 1915:64). This optimistic picture was offset by two factors: the alleged rivalry between the Dutch and Standard Oil Co. which might give rise to suspicion of the motives of the Rockefeller Foundation, and the fact that the 'Dutch know very little about us Americans' (Heiser, 1915:64). On these grounds he concluded that the IHC would have to go slowly in promoting a study of hookworm.

Just over a year later Heiser was again in Java, and on this occasion travelled from Surabaya to Batavia, stopping on the way to observe tourist sites and examine people encountered on the street for signs of hookworm infestation. During his 12-day stay he concluded that the Javanese were 'as industrious as Chinamen, and far more cheerful'



(Heiser, 1916:256-257) but continued to be frustrated by the Dutch bureaucracy and amused by Dutch spelling and eating habits. At the end of this visit agreement was reached that Dr Darling of the Foundation would return later in the year to conduct a study of the hookworm situation.

The Darling report established that hookworm was indeed a major problem with very high rates of infestation found in 12 sample areas, and concluded that 'at least 90 per cent of all the inhabitants of Java are infected with hookworm disease. ... The heaviest infection was recorded in densely populated Mid-Java' (Darling, 1918:23). The reasons for these high rates were said to be the 'insanitary habits of the natives' and the system of irrigation which allowed the rapid spread of the infection from one area of the country to another (Darling, 1918:23). The report provided an analysis of the relative impact of hookworm and malaria on the health of Javanese, concluding that the greatest risks occurred in malarial regions where the severity of anaemia among inhabitants was greater than if they suffered only malaria or hookworm alone. This made the need for much more broadly-based environmental sanitation programs all the more urgent, to address this dual threat to health.

Following the submission of the Darling Report it appeared that the Foundation and the Government would begin co-operative work on health issues, and a representative of the Foundation was selected and dispatched to Batavia. When his ship reached Ceylon (Sri Lanka) he found a telegram waiting for him, saying that the Java post had fallen through and that he had been transferred to another position. The reason for this abrupt change of plans was that officers of the Public Health Service (*Burgerlijk Geneeskundige Dienst*) raised serious objections to the Darling Commission Report, citing in particular a photo of a labourer with the caption: 'In the great struggle for subsistence in the beautiful island of Java, men and women become beasts of burden' (Hydrick, 1935). This tweaking of colonial sensitivities caused, in Hydrick's words, 'a very unpleasant reaction', and delayed for eight years the issuance of another invitation for the Foundation to work in Java. The sensitivity over the photo was likely just a catalyst for Dutch objections to Heiser's plans. As Darling records, the Chief Medical Inspector in 1916 had said that he would prefer to have his own staff undertake a hookworm campaign. 'This is the thing I have long wished to do', he declared, 'and now it is to be done by others. But I have no men – no men' (Darling, 1916).

On April 10, 1924 two representatives of the Rockefeller Foundation finally arrived in Java to undertake the demonstration project on hookworm control first mooted by Heiser nearly a decade earlier. Dr John Lee Hydrick and Dr van Noort were not a happy pair. The former, an American of Dutch descent, was the senior of the two, having worked for the Foundation in the Southern US and the Caribbean, while the latter, a 'Hollander' had been recruited specifically to work on the project in Java, in the hope that he would be able to iron out the difficulties the Foundation had been having with the Dutch Government. Their mission started out badly, with Hydrick being embarrassed by an incident provoked by van Noort in Holland, and irritated by his attitudes and behaviour on the trip to Batavia. By December 8 Hydrick had lost patience, and sent a letter to Heiser stating that 'in addition to rendering unsatisfactory service he [van Noort] refuses to listen to the hints given him by government officials concerning the use of the name of the Rockefeller Foundation and his criticisms of government officers' (Hydrick, 1924). In short order the officer responsible for establishing good relations with the Dutch Government was sent packing.



With the departure of van Noort Hydrick was able to concentrate on the work of setting up a demonstration of the value of educational approaches to the control of hookworm infestation. In November 1924 he wrote to Heiser reporting that the conditions of East, Central and West Java were so different that the Dutch suggested working first in the West, and then setting up stations in Central and East Java for comparative purposes. Further, the Foundation would take prime responsibility in Bantam, an area to the west of Batavia, inhabited by Sundanese people, and the Health Service would work in Central Java. This seemed a reasonable plan to Heiser and Hydrick.

In many ways the story of the comparison is a classic in the history of public health interventions. On the one side was the educational approach advocated by Heiser and Hydrick. On the other stood the Public Health Service of the Dutch colonial government, which insisted that provision of chenopodium (a worm medicine) through dispensaries, and enforcement of regulations to build latrines were necessary to force the essentially 'lazy' Javanese into action. The battle was joined in 1924. The Chief Health Officer of the Netherlands Indies, Dr van Lonkhuijzen, had essentially challenged the Foundation to test their methods in a district noted for anti-government unrest, while the Service would work in Kroja, Central Java, where the ethnic Javanese were noted for compliance with government directives. The Foundation considered that the demonstration of the efficacy of hookworm preventive measures should normally take only a few months, but the Dutch argued that at least 18 months would be needed to do a good job. Hydrick accepted their arguments, but Heiser was impatient and wanted to see the work speeded along. The whole of 1925 was taken up with the establishment of demonstration areas.

Finally, in early January, Heiser steamed into Tanjung Priok harbour to be met at dockside by Hydrick and Dr van Lonkhuijzen, who, said Heiser, 'in the usual Dutch way offered no assistance in landing or in passing through the customs. Often I have an intense longing to speak Dutch. Perhaps then one could judge whether they are stupid or discourteous' (Heiser, 1925-1926:266ff). The trip was obviously off to a bad start.

Later, a further hitch arose when it was announced that Dr van Lonkhuijzen would not be able to accompany them to Bantam to examine the Rockefeller demonstration site. Heiser and Hydrick thus set off on the 120-mile trip accompanied by Dr Tuyter of the subdistrict and Dr Mollinger, the medical director for West Java. These two officials appeared quite proud of their co-operative work with the Foundation in Bantam since it represented 'practically the first time in the history of Java that a large scale undertaking has been undertaken by persuasion instead of by order' (Heiser, 1925-1926:267). The education campaign was carried out by *mandoers* who gave large public lectures which attracted large crowds of people seeking information and treatment. Instructions were given on techniques of building latrines, and as a result 800 were voluntarily constructed in a district which had 1,100 houses.

On their return to Batavia, the team found that their enthusiasm for the results in the demonstration area was not shared by central officials. The latrines, Dr van Lonkhuijzen declared, were substandard. They were made of poor materials, and did not reach the government's criteria for hygiene. He paid little attention to the accomplishment of health workers who had conducted the education campaign, and in any case, he said, the methods were too slow to be applied to the major problems of hookworm among Java's large, densely settled population.



On January 12, 1925 the team went on to Kroja. There they found a series of latrines, standing 'new and trim'. Heiser and Hydrick were indeed impressed at the solid brick construction. They were also amazed at the report that 150,000 such latrines had been built under government order. Then Heiser went over to the first latrine, lit a piece of paper and dropped it through the hole. 'This latrine', he announced to the onlookers, 'has never been used'. So with the second, the third, and on through the hot and dusty day. As recorded in Heiser's diary and his later memoirs, van Lonkhuijzen first questioned his own officials closely, and then turned to Heiser and Hydrick and declared 'I surrender. ... I'm convinced now. We must have public health education in Java' (Heiser, 1936:477). Back at the guest house that evening they mapped out a strategy for the development of a Public Health Education unit, and arranged the commitment of Rockefeller Foundation funds, and Hydrick's services, to this activity. This was the start of what eventually became the Hygiene Propaganda Unit, an innovative attempt to use mass media techniques and an educative approach to encourage Indonesians to take an active part in preventive health measures. Heiser and Hydrick were very pleased with their achievement.

As recorded by Heiser this dramatic episode had produced a thoroughly satisfactory climax. The Dutch had capitulated, the Foundation's international mission would expand into one of the largest colonies in the world, and the Javanese had demonstrated a responsive attitude to the educational approach advocated by the medical enthusiasts of the Foundation. His later autobiography portrays this as a definitive event (Heiser, 1936:476-479), but his diary raises some remaining doubts (Heiser, 1926:275ff).

### **The development of the hygiene propaganda unit**

Heiser's pleasure at having staged such a convincing demonstration of the shortcomings of the authoritarian approach did not reduce his basic suspicion of Dutch motives, and over the next few days, as the team travelled east to Wonosobo and Karangobar to inspect various health programs, he had occasion to reflect on the basic approach of the Dutch to health care in Java. 'Everywhere we stopped we were surrounded by a curious multitude. ... The cringing of the natives and never standing in the presence of the officials is most impressive ... the well trained Residents and Civil Service are no doubt largely responsible [for this]' (Heiser, 1925-1926:276). As they travelled on they moved into regions where the bubonic plague was active (Hull, 1987) and Heiser had the opportunity to discuss the strategy of plague control with the chief officers of the plague service. He found their approach very disturbing:

The plague view is more or less typical of the Dutch attitude toward all health problems. They wait until something happens, then concentrate heavily on the infection itself, thus avoiding the expense of guarding the many places where nothing happens. They say it is their duty to keep their population happy, and as it never wants anything done, they feel that in attacking infection after its appearance they are interfering about as much with the habits and customs of the people as circumstances warrant (Heiser, 1925-1926:281).

Disturbed by what he had seen Heiser confronted van Lonkhuijzen to ask point blank whether the Dutch Government really wanted the Foundation to work in Java on hygiene education, and if so, on what basis. The latter 'stated in very positive terms' that he welcomed the participation of the Foundation and agreed to a four-point plan for the establishment of the work:



1. The International Health Board was to conduct the program of public health education.

2. The Foundation and the Government should co-operate in the establishment of carefully designed test demonstrations to work out plans suitable to Java.

3. Dr Hydrick 'not only in name but in reality' should act as chief of this unit and be the official advisor to Dr van Lonkhuijzen in hookworm control.

4. The Government should pay all expenses for latrines and treatments, while the Foundation should pay for the development of health education. Because of the growing demand for hookworm treatment, local governments should be involved in the payment of extension work (Heiser, 1925-1926:282).

The structure agreed upon, Hydrick prepared himself for his new work of developing a full-blown health education unit. On January 16, 1926 he and Heiser discussed these plans over lunch and then he drove Heiser to the docks, where the latter boarded the SS Plancius to continue his circumnavigation on behalf of the Foundation.

The Division of Health Education was initially concerned with the control of the spread of parasitic infection. The strategy was to establish field stations across Java, and eventually throughout Indonesia. At each station programs of public lectures, treatment of worm infestations, and encouragement of the construction of latrines were to replicate the successes of the Bantam experiment. To support this an automobile was modified to carry film and slide projectors into remote villages. Called the Healthmobile, it attracted a great deal of interest among villagers, who were particularly interested to see lantern slides showing local subjects related to the hookworm campaign.

The slides and films were followed up by house-to-house visits of a trained *mantri* (health worker) who talked to groups of three to ten people in a household courtyard, showing them enlarged photographs of parasites, briefly explaining the purpose of proper hygiene, and then questioning them, to determine that they had understood his presentation.

*Mantri* were recruited from a very small section of the population. Initially all males, they were to be literate, have a good speaking voice, and good personal appearance. They could not be too young, since the people would not respect callow youths, nor too old, since the duties were onerous. Further 'the *mantri* must be polite and yet not servile, he must not be shy and yet not too aggressive, and most important of all, he must be patient with those he is trying to teach, and not easily discouraged' (Annual Report, 1926:6). Once selected the *mantri* underwent both office and intensive field training before being sent out to the villages. However, Hydrick noted that training essentially never ceased, because, while the hookworm campaign was the entry point of the campaign, and as success was achieved there, the *mantri* would be expected to master new subjects to improve the hygiene conditions of his region.

In June 1928 a disastrous fire in the Gang Kwini office of the Unit destroyed practically all the negatives as well as the copies of the films made on hookworm disease, framboesia, latrine construction, and other topics. Soon afterwards the Unit moved to 67/70 Jalan Kebon Sirih. Even though the program was developing a procedure for house-to-house contact, in reality the emphasis was on participation at Annual Fairs in the major cities. In part this was because of a continuing problem of lack of personnel interested in carrying out hygiene work in rural areas. Hydrick persisted in trying to expand the scope and coverage of the hygiene education, and by 1932, having achieved a more secure status in the colonial



health service, he began concentrating on setting up general health outreach programs at the level of regencies, calling on local resources for the recruitment of appropriate workers.

By 1936 the activities of the Health Units had led to the establishment of a Hygiene *Mantri* School in Purwokerto, to train cadres who would take the lessons of preventive health measures into villages. The school was opened on April 1, and an 18-month-long course was designed for the students, who were drawn from all over the archipelago. Interestingly, the Government and Hydrick had requested that the Rockefeller Foundation should provide seed money for this innovative approach, but in 1935 they received a complete refusal to these requests. Apparently the Foundation was not ready for the idea of 'village health workers', so the initiative was forced to rely on financing from regency governments caught in the depths of the Great Depression.

From the outset of its co-operation with the Dutch the stance of the Rockefeller Foundation had always been that it should design its projects for eventual withdrawal, and in reports and correspondence the question was frequently asked, 'when will the government take over the activity?'. For Hydrick this was a dilemma, for he was constantly trying to impress upon his superiors and colleagues in the Health Service that he and the Foundation were fully committed to working with them on the development of the complex program of hygiene education activities. At the same time he was engaged in regular correspondence with the New York office, acknowledging the need for eventual self-sufficiency in Java, but arguing that there were special circumstances, new difficulties, or unusual opportunities which justified the Foundation staying on in the Netherlands Indies to follow up the unique program of preventive medicine developing in Purwokerto. Gradually the persistent scepticism from New York became too much, and Hydrick and his colleagues had to accept that the Foundation support would be terminated, even though the program was still in an early stage of development.

On July 18, 1939, Hydrick boarded a ship in Tandjung Priok and sailed away from Batavia, hopeful that the hygiene work that he had pursued for the previous 15 years would be carried on and expanded by the colonial government. On May 10, 1940 Holland was overrun by the German army, and on March 8, 1942, the Government of the Netherlands Indies fell to invading Japanese forces. Soon afterwards the medical schools in Jakarta and Surabaya were closed and the Dutch doctors still in the country were interned. Years of war and revolution followed. By the time relative stability returned to a newly independent Indonesia, and work could resume to improve the public health conditions of the people, the world had developed new notions of how public health work could be carried out. Military style mass campaigns became the dominant mode to attack the continuing problems of yaws (e.g., Soetopo and Wasito, 1953:273), malaria, smallpox, and the immunizable childhood diseases, and the hygiene work using village-based paramedics pioneered by Hydrick was forgotten, or dismissed as being too tedious and expensive in the era of 'magic bullets'.

Hydrick retired from the Rockefeller Foundation in 1953 at age 65, and died five years later, leaving behind only his one book on *Intensive Rural Hygiene Work* (1937 and various reprints), but no recollection or summary of the meaning of the Foundation's near quarter of a century of activities in Java, which today appears as a clear precursor of primary health care programs.



## Discussion

Some parallels between the development of the hygiene program in the 1930s and the primary health care program in the 1980s are stark and unnerving. In both cases a few people had a clear idea of the need to address the full range of village health problems simultaneously in ways which would encourage community participation, and focus on health education. In both, the central government gave tacit support to the efforts, but maintained a pattern of expenditure which directed funds disproportionately to urban health establishments. Under the guise of decentralization local health care costs were gradually transferred to provincial-level governments. Donors, while nominally in favour of community participation and local health workers, were bound by bureaucratic procedures and a basic world view which alienated them from the practical imperatives of the approach.

Perhaps most surprisingly of all, in both cases much of the argument for community participation and education came from foreigners: American medical doctors sent by the Rockefeller Foundation. In the 1930s it was Hydrick, the shy, Southern Harvard graduate who learned both Dutch and Malay during his dozen years in Java. In the 1970s the Rockefeller Foundation supported a series of doctors to the Community Medicine program at Gadjah Mada University (Coleman, 1987), two of whom, Jon Rohde and Robert Northrup (also Harvard graduates), proposed approaches which resonated with ideas quite similar to Hydrick's, though they knew very little about that earlier Rockefeller program when they first arrived in Java. Reading material from both periods one encounters numerous references to reliance on the people, and the need for doctors to serve the community which echo the revolutionary writings of 18th century America (or 20th century China). This foreign cultural element certainly provided a leavening agent in the evolution of public health institutions over seven decades.

Of course, in the evolution of such institutions the complex clash of cultures, interests and political groups produces numerous illuminating dichotomies worthy of study. For instance, differences between elite views and values and lower class needs and perceptions, competing claims of governmental and foreign groups to speak on behalf of the real needs of the people, and the gap between the rhetoric promoting various health interventions, and the financial support they claim, each point to different perspectives of public health institutions which have important cultural dimensions. Yet the dichotomy which dominates academic discussion of public health – the McKeown thesis of the relative role of medical intervention versus hygiene and diet in reducing mortality – is at best of only minor importance in understanding the evolution of health care services in Indonesia. The poles of that dichotomy are taught in classrooms in Indonesia, just as they are in America and Australia, but debate on this dichotomy is so devoid of social context as to be 'sanitized' of any meaningful relevance to contemporary Indonesian realities. In short, it appears that the development of primary health care institutions has been more influenced by the vagaries of competing class, economic and political interests than by competition between advocates of investment in medical technology or reliance on the life-saving effects of simple economic growth. Because of this, the future of health care in Indonesia will probably not be determined by a resolution of questions of the relative economics of medical interventions as it will be by resolutions to the more basic question of who will be empowered politically and financially to set priorities and make decisions: communities,



doctors, central ministries, local officials, or various industry groups. At the moment it is apparent that very little emphasis is placed on the development of real local power and decision-making, and one can only suspect that some of the reasons for this are similar to the reasons why the Rockefeller Foundation and the Netherlands Indies Government failed to promote effective community participation in the 1930s. In both cases there is an expressed desire for communities to be involved, but for the central and regional governments to make the decisions and control the money.

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## Chapter 26

# Cultural dimensions of an Indonesian family planning service

Ninuk Widyantoro and W. Sarwono Sarsanto

### Introduction

With the rapid development of women's reproductive health services in Indonesia in the last two decades, problems of unequal access and limited services have become obvious. A government program provides basic family planning services throughout the country down to the village level. Only a limited range of contraceptive and gynaecological help has so far been provided in this way, and the government is under pressure from consumers to expand the range and quality of family planning services. Unfortunately recent economic difficulties have led to severe cuts in the national budget. Hence the government has urged community groups to develop programs for women who are at present inadequately served by the conventional family planning program. This includes middle-class women who desire private services, and women with unwanted pregnancies who desire pregnancy termination services not yet available through government clinics.

Since the late 1970s the Indonesian Planned Parenthood Association (IPPA) has stressed quality in its programs, and concentrated on activities not carried out by either government or other non-governmental organizations. Through a network of comprehensive family planning clinics (*Wisma Keluarga Berencana Terpadu*, WKBT) the Association provides not only conventional family planning methods, but also menstrual regulation services for married women who have experienced contraceptive failure and unmarried clients who have unwanted pregnancies. Some of the clinics in the network also provide infertility services, while others arrange referral for patients desiring such assistance.

Over the last five years Ford Foundation funding and collaboration with the International Women's Health Coalition (IWHC) has helped the WKBT to concentrate on improving the quality of care in general, and the quality of services to women desiring pregnancy termination in particular. In this effort the WKBT approach has been to train staff to treat clients in a non-judgemental way with due regard to their needs and feelings. Clients routinely receive full psychological and medical counselling before deciding whether or not to have an abortion, and efforts are made to encourage women who opt for pregnancy termination to also accept an appropriate form of contraception following the procedure. Emphasis is placed on developing a responsible attitude toward reproduction, in the hope that improved contraceptive behaviour will reduce the likelihood of subsequent requests for menstrual regulation. WKBT seek to ensure that acceptors comprehend the implications of a range of potential contraceptive choices so they will not quickly abandon the method they choose.

It was in this context that we have been conducting research into the characteristics and attitudes of unmarried clients seeking first-trimester abortion at WKBT clinics in Bali and Jakarta. The study of clients was initiated by the clinic counsellors on December 1, 1987. In addition we have studied the attitudes of doctors and clinic personnel to try to



understand how their approach affected the reactions of the clients, and subsequent satisfaction with services. In general we have found that the established 'clinic culture' in Indonesia was not conducive to effective communication between health personnel and clients, or high quality of services. The project has attempted to improve the empathy of clinic staff and the quality of counselling given to clients, to promote more effective communication and decision-making. This paper reviews the findings of the research to date. We first analyse the perspectives of clients and medical personnel before discussing some of the implications of this dysfunctional cultural setting for clinic management and training.

### **Characteristics of the clients.**

In order to better understand how accidental pregnancy occurs and what longer-term advice the client requires, a study was undertaken among a number of the WKBT clinics to assess the background of menstrual regulation (MR) clients and their reasons for wanting MR. The basic results are as follows:

Of the unmarried women studied to date, the majority are in their late teens or early twenties, but their partners are about two to four years older.

Most of the women are still students, and the majority of these are in senior high school, while over half of their partners are currently high school and college students.

A few of the girls are working in the private sector, and a few are government employees.

On the basis of their age, education and vocation, it is apparent that the unmarried MR cases coming to the clinics are quite unready for marriage. Even though they are, in general, high school and college educated, it seems that they are generally either ignorant about the process of human reproduction or lacking in the motivation to protect themselves from unwanted pregnancy.

### **Nature of the relationships**

Most of these relationships are obviously not short-term flings, but rather involve long term commitment. One third of the couples had been together for more than two years, while another 30 per cent had been seeing each other for one to two years. A fifth claimed they had been going steady (*berpacaran*) for between seven months and a year, while only 14 per cent had been together for less than six months. In this light it is all the more surprising that the women seemed to be ignorant of the risks of pregnancy. It appeared that a third had undertaken intercourse without any recourse to contraceptives, while a half claimed to be using the rhythm method or coitus interruptus. Most of the latter group said they had not been afraid of becoming pregnant because they believed in their boyfriends' suggested method of preventing pregnancy (usually coitus interruptus). Some said that they did not have any fear because after having sex on a number of occasions, there were no consequences, while others said that they were not afraid because they assumed that they would eventually marry their boyfriend, but once they became pregnant, they found the prospect of interrupting studies totally unacceptable.



### Initial attempts to induce abortion

Only rarely did the clients come directly to our clinic; most tried various other ways to terminate the pregnancy before discovering the WKBT services. About half went first to their general practitioner; three quarters of these cases were referred to a WKBT clinic. Some of the doctors gave them pills or an injection to try to induce menstruation before they referred the patient to the WKBT. Some women try to bring on an abortion by taking *cumorit* pills which are freely sold without a doctor's prescription. Some patients try *jamu* (a traditional herbal medication). Some *jamu* is processed and packaged, and available from general stores and kiosks. Among the more well-known brands are 'Air Mancur', 'Jamu-Jago', 'Nyonya Meneer', and 'Baiduri'. These are all registered with the Indonesian Department of Health and contain a written warning: 'Caution, not to be taken by pregnant women as it could cause miscarriage'. This warning is interpreted by consumers as indicating an effective way to terminate unwanted pregnancy.

Other traditional *jamu* are prepared by using readily available materials, usually including pineapple, chilli preparations, alcoholic drinks or carbonated drinks, and are based on a mixture of traditional recipes and school-girl imagination. After drinking these *jamu* the women usually experience severe stomach pain.

Only a few of the girls went to a traditional midwife (*dukun*) or to a trained midwife (*bidan*). The adolescents in this study apparently felt that doctors have more credibility, even though from discussions outside the clinic we know that many women who go to *dukun* succeed in inducing abortions, though sometimes with drastic consequences.

Usually the *dukun* administer home-made *jamu* or strongly massage the patient's stomach. Trained midwives usually give *cumorit* pills to the patient, and if these are not successful, they send the patient to a doctor or to the WKBT clinic.

### Attitudes of the clients

After all these efforts have been unsuccessful and the women make their way to the WKBT clinic they are usually quite anxious (nearly two-thirds), distraught, shy and confused. Most of them (around 70 per cent) also said that their parents were unaware of their pregnancy. That is why the decision to seek an abortion usually (65 per cent), involves only the girl and her partner. Just under a third of the clients said that their parents knew about their pregnancy and in these cases the parents often helped them deal with the situation, accompanying them to the clinic, participating in the counselling, and paying for the procedure.

From the preliminary findings of this study it can be seen that a number of commonly held notions about unmarried women seeking abortion in Indonesia are unfounded. While they are young, they are generally not immature, with most of them having achieved relatively high levels of education. Their relationships with their partners usually involve long-term commitments, and they most often believe that they are taking sufficient precautions to prevent pregnancy. They simply lack adequate understanding of the risks of the contraceptive methods they are using.

The need for education among this group is matched by a need to correct many misunderstandings they have concerning the potential efficacy of herbal methods of abortion, which not only do not work, but also produce long delays before the women eventually come to the clinic. In this it is disturbing to see that they are often misled by equally ignorant traditional and modern health practitioners who persist in offering



preparations which are not going to terminate the pregnancy, but which may expose the woman to heightened anxiety and physical risk. With these points in mind we were encouraged to ask why the women did not go first to a clinic offering abortion services.

### The culture of the clinic

When women enter clinics they are usually entering a new culture, which they do not fully understand, and which they often fear. Even when the language of the clinic staff is the same as the client's mother tongue (not always the case in Indonesia), the terminology, body language, and mode of discourse are often completely foreign. The staff may as well be speaking another dialect if not another language. Also, clinics are quintessentially middle-class institutions in structure, decoration, and working rhythms, and for many clients this makes them very discomfoting surroundings. From the outset the WKBT have attempted to overcome these barriers. The very name *Wisma* has the connotation of a home-like atmosphere, and one of the elements of quality care has been the goal of making each client feel as comfortable as possible under difficult circumstances (Mashjur, 1980:17-18). We feel that the WKBT project has been fairly successful in promoting these goals, because it is easy for all clinic staff to understand the benefits of physical comforts in putting clients at ease. The concept accords closely to terms of traditional Indonesian hospitality.

Of much greater difficulty is the promotion of the idea that the client should be treated with respect. Staff members claim that they always treat clients with respect, and are insensitive to the degree to which their behaviour is disconcerting to clients approaching the clinic in a distressed state. This is particularly the case with doctors (and especially male doctors).

In trying to analyse the problem of doctor-patient relations we have concentrated on three issues which appear to be important. First is the problem of the relative social and economic status of doctors and patients. Seen in terms of the formal status hierarchies of Indonesian societies the older, male, educated, married, well-to-do doctors are in a world apart from young, female, unmarried students who seek their help.

Were that the only barrier it might be imagined that some 'sensitivity training' of doctors would help to open lines of communication. However, the second problem doctors face is the general overload of their work schedules. Women may wait for hours for a service, but the doctor rushes in from another job or clinic and has to finish any procedure quickly before rushing off to a meeting or private practice. He assumes other staff have talked to the client, and feels that he has little time to ask any questions about the woman's feelings or fears. The encounter is brief and very narrowly clinical. This exacerbates the social distances inherent in the status relations.

Finally, doctors in Indonesia are trained to act in complete isolation. They fill in the medical history themselves, make physical examinations, formulate diagnoses and select treatment on a completely autonomous basis. If other clinical staff are present in the room, they are excluded from any of these processes, and would never spontaneously make any suggestions to the doctor. Their roles are completely supplementary, if not marginal. Doctors feel particularly burdened by their role and in particular the notion that they 'cannot be in error, because they must be right' for the sake of the patient. They are socialized to take full responsibility, and this means that they shield themselves from both paramedics and patients, using walls of silence which brook no questions.



The WKBT have attempted to develop a 'team' approach in which the doctors hand over a wide variety of case management responsibilities to paramedics, and act as central co-ordinators. In particular doctors are encouraged to rely on paramedics and talk with them, and open lines of communication with patients which welcome questions and expressions of concern. Instead of the situation where doctors give the answers, the clinic team is encouraged to provide the patient with a variety of alternatives, and sufficient information to allow her to make her own decision as to the service most appropriate to her needs.

### Cultural settings of clinics

This general guideline for project development must be adapted to the different ethnic settings of the different WKBT. Four examples have been particularly important in shaping our thinking on this issue. Our own experience was rooted in the *Wisma Pancawarga* clinic in Jakarta, which has a clientele of largely Javanese and Sundanese middle-class background drawn from a huge metropolis. The unmarried clients arrive in a state of great emotional upset, and may attempt to lie about their name, age and relation to the people accompanying them. Many of the women attempt to *menjaga wibawa* or maintain their status and economic distance from others. Almost all speak of their 'shame' (*malu*) or feelings of guilt. Many of the girls are afraid to reveal their pregnancy to their parents. The potential and likely basis of communication of these patients with the clinic staff is limited by the barriers the patients construct around themselves. These are barriers the counsellor, reception staff and doctors overcome only with great skill and persistence.

By contrast the clients at the *Wisma Anggrek* clinic in Bandung come from a similar ethnic background, but a smaller city and its rural hinterlands. The doctor, a warm, caring woman active in church and community groups, takes a great deal of time with each patient, and encourages her to discuss her problems in the longer term context of plans for a future family. The style seems totally appropriate to the small-town lifestyle of both the doctor and her patients, but is not seen as a realistic approach in the high-pressure world of Jakarta clinics.

Patients at the *Caturwarga* Clinic in Bali seem very calm and patient as they wait for services. A Javanese counsellor finds this calmness unnerving. They seem to be totally unashamed by their predicament, and ask for an abortion in a totally matter-of-fact way. Their parents, if they come to the clinic at all, seem to be disinterested observers. Some parents comment that once girls have reached the lifecycle stage of the tooth-filing ceremony (usually around 15 to 18 years of age), they are adults, and as adults they are completely responsible for their own behaviour. The parents seem to attend out of a feeling of friendship rather than parental responsibility.

The province of North Sulawesi has a high rate of literacy and contraceptive use, and a relatively liberated role of women. In this context there is some expression of shame if an unmarried woman becomes pregnant, but it is regarded as her personal decision to consider terminating the pregnancy. The role of her partner or family is to provide her with support if she needs it. The doctors and clinic staff seem to have no difficulty discussing the procedure with the women because there are few barriers to communication arising from perceived status differences.

In all four settings the clinic staff have had similar training, and there are some similarities in the approaches of doctors, paramedics and counsellors. However each clinic displays a very different 'culture' related to the characteristics of the host community, and



particularly the ethnic mix of the clientele and staff. Though all four are WKBT, and in this sense part of a common project, each displays distinct characteristics through the choice of clinic name, furnishings, procedures, hours of operation, and criteria for client acceptance. One of the major accomplishments of the WKBT project has been to encourage exchange visits among clinic staff, and frequent discussions of experiences, to open the directors to ideas outside their own narrow clinic culture.

## Conclusions

The great challenge for the WKBT program is to reach young women before they become pregnant, and provide them with adequate information and materials to improve their birth control practices. They need to be educated against the purchase of useless and potentially dangerous herbs and *cumorit*. These women need access to competent counselling, and the highest standards of medical care as early as possible in their unwanted pregnancy. But in the definition of high-quality medical care there must be full acknowledgment of the need to communicate technical information fully and clearly to the client, and to help her make the best decision for herself, rather than making decisions for her. This means that all clinic staff must respect clients' rights, and avoid any hint of the sort of condescending treatment that has long characterized clinic services in many regions of Indonesia.

In this study we have tried to show how attempts to raise the quality of reproductive health care must take account of two distinct dimensions of culture: the culture of the clinical service point, and the culture of the host community. Clients seeking services are in predicaments in their cultural setting, and they face the 'foreign' traditions of the clinic culture in a time of some stress and uncertainty. The clinic staff are also under pressure, with the constant responsibility for human lives on their minds, and the clinic culture offers a comfortable cocoon protecting them from the criticisms of outsiders, even if they are clients. Efforts to promote quality care, then, consist of measures to bring these two cultural spheres closer together, promoting more open communication and mutual respect. As the preceding analysis indicates, this is a formidable task.

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## Chapter 27

# Social psychological aspects of health and health care

Wirawan Sarwono Sarlito

### Specific aims

This paper focuses on sexual health behaviour and attempts to identify the reasons why persons who are aware of the health benefits of certain behaviours do not practise those behaviours. Specifically, the study attempts to identify attitudes, beliefs, and norms concerning specific sexual health behaviours in Indonesia; and to determine whether those attitudes, beliefs and norms partly explain variations in health practices among persons with comparable levels of knowledge.

### Background and significance

In Indonesia there are hardly any accurate records on sexual health problems. A record of the year 1985-1986 in the Dr Sardjito General Hospital in Yogyakarta, for example, reported 531 sexually transmitted disease (STD) cases of which 71.9 per cent were diagnosed as gonorrhoea (Soedarmadi, 1988:14). However, the figures did not represent the actual situation in Indonesian society since there is no way to estimate what proportion of STD cases went to hospitals for medical treatment. It might be thought that there are many more STD cases in society, but when in my survey on sexual behaviour of high risk groups I tried to get some accidental samples in Jakarta and Bali early this year, I found out that such cases were very difficult to get although my team had contacted a number of hospitals and private physicians. On the other hand this experience does not mean that the incidence of sexual disease or illness in the society is very low. Most STD cases just do not go to hospitals or medical doctors. They go to illegal drugstores, try to cure their illness themselves or they do not do anything and let the disease heal by itself because they would be ashamed if other people knew about it.

The tendency to conceal sexual experiences, particularly those considered deviant, makes people with such experience feel afraid, depressed or frustrated. In some emergencies such as unwanted pregnancy they tend to postpone the action until too late or to make unwise and sometimes fatal decisions such as to have an illegal abortion. Other cases such as promiscuity may cause serious unresolved problems in the husband-wife relationship. In my clinical experience, there is even serious depression or inferiority complex due to the loss of virginity among unmarried women (particularly teenagers or young adults).

It is obvious that in Indonesia people just do not talk about sex. It is considered taboo. Consequently dissemination of proper sex information is very difficult. Sex education is hardly implemented in schools and even less in families. One resource of information on sex is the medical doctors but they tend to minimize their communications with their patients, whereas psychologists and counsellors are not well equipped with such information. That is why 51.3 per cent of the respondents in a survey of young people in a town in Central Java admitted to having very limited knowledge of sexuality. At the same



time, 43.1 per cent said that they had been exposed to pornography and 1.1 per cent had had sexual intercourse (Sarlito, 1985b). It is evident that although people do not talk openly about sex, they discuss it with close friends or peers and they even practise it regardless of their very limited knowledge.

The interesting thing is that even people with sufficient knowledge of sex practise unwise sexual acts. A typical example comes from the USA: in a survey in this well-educated country it was found that 55 to 75 per cent of sexually active adolescents do not use condoms (Conger, 1975:227-278). In Indonesia, inconsistency between knowledge and behaviour is reported in a survey in Surabaya. Almost all respondents (N=300) know that extramarital as well as premarital intercourse is against the religious and social norms, however 48.5 per cent admit that they have had extramarital intercourse and 50 per cent have had premarital sex (Siahaan, 1989:3).

Owing to the possibility of negative effects of inconsistencies between knowledge and behaviour, it is important to uncover the hidden psycho-social factors which might influence the behaviour in spite of the existing knowledge. By knowing these factors it is possible to develop intervention programs such as the provision of education, information and communication on sexual matters.

### Major question

A number of social psychologists have theorized that persons have a tendency to maintain consistency between their beliefs and actions. This condition is called cognitive consistency. In situations in which persons behave in ways that are not consistent with their knowledge, it has been hypothesized that people will experience 'cognitive dissonance' and attempt to reduce dissonance by one of several methods, including changing the behaviour, reframing the cognitive elements, and getting new information to justify the behaviour (Shaw and Constanzo, 1970:188).

The discrepancy between knowledge and practice may be reinforced by factors such as other personal beliefs that are in conflict with the knowledge of interest, but that reinforce the existing behaviour pattern; conflicting beliefs among family or household members; conflicting beliefs in the local community; environmental or economic constraints; and personal orientations or social norms that reduce the salience of the behaviours of interest.

At this point it is necessary to define the concepts of 'knowledge' and 'belief' in order to differentiate sharply between them. According to Festinger, both knowledge and belief are elements of cognition. 'Knowledge' is defined as what a person knows about psychological objects (Shaw and Constanzo, 1970:208); 'belief' on the other hand is defined as an evaluation of psychological objects, regardless of whether the evaluation is consistent or inconsistent with the facts (Wrightsmann, 1973:157).

It is well established that personal beliefs about the importance of certain behaviours can be learned from and reinforced by the social environment (Shaw and Constanzo, 1970:64). For example, the traditional contraceptive method of using the folk medication called *jamu* is implemented from generation to generation just by imitating the existing models in the society.

This paper primarily concerns persons who have specific knowledge about health practices but do not act in accordance with their knowledge; in particular, I am interested in explaining the factors that differentiate between practice and knowledge.



## The phenomenon

The case of 55-75 per cent of American sexually active adolescents who do not use condoms can be explained by Byrne's theory on the steps of decision-making in using contraception: according to Byrne this particular behaviour which is inconsistent with their knowledge of STD is due to their strong feelings of love. Being in love they do not want to hurt their partner's feelings, and since love is genuine and spontaneous, it is against the nature of love if somebody makes preparation before making love, by carrying condoms (Wrightsmann et al., 1984:180-181).

The strong feelings which might lead to inconsistent behaviour are typical of adolescence, which is by nature a period of unstable emotion making people of this age vulnerable to external influences as well as internal drives. In terms of health and health care they become a high-risk group.

In Indonesian society another high-risk group, in terms of sexual health and health care, consists of the middle and upper-class levels. Through their better economic condition they have been more exposed to sexual matters (intensively as well as extensively) by mass media than have the lower levels. Together with the exposure they also absorb different norms, some more permissive than others. The gap between the norms shown in the media and the norms practised in daily life increases the possibility of inconsistent behaviour. Siahaan (1989) named this condition the 'dual culture'. The first culture is the 'ideal culture' as it is expected by the society and the second one is the 'actual or real culture' as it is practised by some people and shown in the media.

Negative side effects of sexual activity which deviates from the ideal norm, as reported by Siahaan (1989:5), are abuse of wives by husbands or vice versa and abuse of children by parents. Of the male respondents 63.9 per cent said that they would divorce their wives if the latter were found having extramarital sex, 8.4 per cent would tell the wives to leave the house and another 4.8 per cent would physically abuse the wives. Only 26.5 per cent of female respondents would ask for divorce if they found their husbands having extramarital sex. Some women would report to the husbands' superiors in the office (18.4 per cent); a few would take revenge by similar extramarital sex (4.1 per cent); nearly one-third would not react at all. In the case of children found having premarital or extramarital sex, some parents would tell the children to leave home immediately (in the case of boys: 7.7 per cent; girls: 10.7 per cent) or disown them as sons or daughters of the family (boys: 1.8 per cent; girls: 3.0 per cent) (Siahaan, 1989:6).

From the different reactions between male and female cases, it is obvious that the negative side effects are more serious for females than for males. This is in line with the social status of women in Indonesia.

To revert to the topic of sexually transmitted diseases: from a survey (Sarlito, 1989) among prostitutes, massage girls and homosexuals in Bali and Jakarta it is evident that there are significant inconsistencies between knowledge and practice of the use of condoms. Among 68 homosexuals, 95.6 per cent are aware of the function of condoms to prevent STD. However, only one out of the 68 always uses condoms in every sexual encounter; just under a third use condoms only occasionally and the remaining respondents do not use condoms at all. Because the homosexuals practise oral sex (85.5 per cent) and anal sex (88.4 per cent), it is not surprising that 11.6 per cent of them said that they had STD in the last month.



It is interesting that the incidence of STD among female prostitutes in this survey is lower than among homosexuals; only 9 per cent of them reported having had STD in the last month. It is possible that this lower figure is related to the sexual technique used by the prostitutes, of whom 97.5 per cent practise only vaginal intercourse. Furthermore in most red light districts and massage parlours the prostitutes get routine medical examinations once a week; they are also trained to know the symptoms of STD so they can take early precautions if the client is infected.

The low rate of infections among these female prostitutes may be the reason for their low rate of use of condoms (only occasionally: 85.8 per cent; don't use them at all: 0.8 per cent). Only 13.3 per cent of 120 respondents insisted on using condoms in each sexual intercourse. However this practice of not using condoms is inconsistent with the respondents' knowledge about sexually transmitted infection: 85.6 per cent of the respondents know that condoms are the best prevention of STD. One possible cause of the inconsistency is that as prostitutes they (82 per cent) tend to follow the clients' will (Sarlito, 1989). But there are still other psycho-social factors concerning the respondents' beliefs which are discussed in the next section of this paper.

As well as being more likely to get STD, the homosexuals usually are trapped between their 'unnatural' sexual desire and their urge to quit practising it. The decision of the International Congress of Psychiatrists in 1983 to delete homosexuality from the list of mental illnesses (Wrightsmann, 1984:175) does not eliminate the stigma of 'abnormality' from the phenomenon (Handoyo, 1988:49). In my clinical experience homosexual patients come with different types of complaints such as vague anxiety, guilty feelings, depression, shame, and difficulty in human interaction. All of them (ego-dystonic homosexuals) asked for professional help to be cured from their 'illness' but only two out of eight patients were willing to co-operate seriously with the psychologist to reduce the homosexual drive. The rest do not possess enough will-power to fight the drive and fall back to homosexual practices which are inconsistent with their own knowledge and even with their own emotions.

### Psycho-social factors

A factor which can reinforce the inconsistency between knowledge and behaviour is the attitude. A strong attitude of being in love, for instance, might prevent an adolescent boy from performing correct and safe sexual acts with his girlfriend. The spontaneity and genuineness of love might be spoiled by the existence of condoms which have been obtained some time before. The girl's feelings may be hurt by the use of condoms since these things are usually associated with prostitution (which is obviously incorrect if we refer to the survey in Sarlito, 1989). For the boy it is very inconvenient to go by himself to a pharmacist or a drugstore to purchase condoms; he will feel ashamed or sinful because condoms are always considered sinful and dirty. However, the failure to use condoms may result in unwanted pregnancies which are quite common in my clinical experience.

Regarding the fact that only a small proportion of prostitutes use condoms, contrary to the general belief in the negative image of condoms, it is interesting to note the reasons put forward by the prostitute respondents. Fifty-eight per cent of them believe that STD can be prevented by cleaning the vagina after every coitus. Other efforts which are believed effective in preventing STD are the following practices: 49 per cent regularly drink traditional *jamu* (medication consisting of mixture of herbs); 19 per cent drink *jamu* after



coitus; 47 per cent take a shower after coitus; 32 per cent take antibiotics after coitus; 28 per cent take antibiotics every day (Sarlito, 1989).

The interesting question now is this: how does the condom get its stigma of association with sin and shame? To answer this question one should look again at Siahaan's concept of the 'dual cultures'. The growing gap between the ideal and real cultures is probably the main source of the negative beliefs about premarital and extramarital sex and things associated with it, one of which is the condom. However, the discrepancy is not likely to diminish since there is a growing tendency to delay marriage because of prolonged education and improvement in economic and social life, which will increase the possibility of premarital and extramarital sex. As a reaction to this the counter-power of the traditional-ideal culture will continue to stigmatize any form of extramarital sex in order to prevent it.

One of the norms of Indonesian ideal culture, still strongly believed in, is that sex is a unity of some inseparable aspects i.e., love, sexual pleasure, procreation and marriage. Every single aspect will be considered bad, sinful or odd without the presence of the other aspects. Marriage without sex is dull, marriage without children is unhappy, love without marriage is sad and marriage without love is boring, sexual pleasure outside marriage is shameful and so on. However, in the reality of the modern world the unity is not maintained. The family planning campaign, for example, has separated procreation from the other aspects of sex. It has taken more than ten painful years for family planning to be accepted by the Indonesians, but sooner or later the other three aspects will also become independent dimensions of sex (Adimoelja, 1989:3).

People in developed countries have been aware of these independent dimensions of sex for decades. As early as the year 1929 there was already research on sexual behaviour by Van de Velde. Kinsey published his famous books on human male and female sexuality in the years 1948 and 1953. Masters and Johnson published their works in 1966 and 1970 and still another author, Kaplan, enriched the bibliography on sexuality in 1974 and 1979 (Adimoelja, 1989:1).

In Indonesia research, books and lectures on human sexuality did not exist before the early 1980s. There was great hesitancy to talk about sex openly and the inhibition is still there, making difficult any effort to reveal the facts of human sexuality. The next problem is that sex education practically does not work in Indonesia, either in the family or in the school; consequently most adolescents look for information on sex in the mass media (68.3 per cent in Jakarta and 72.8 per cent in Banjarmasin) which cannot be guaranteed to provide accurate and proper information. Only a few adolescents (Jakarta: 5.3 per cent, Banjarmasin: 3.8 per cent) still communicate with their parents regarding sexual matters (Dept. of Soc. Psychology, 1987).

The poor communication between parent and child may lead to still another problem: this concerns premarital sex. In a survey in some towns in Java and Kalimantan (N=367), I found a significant correlation between the quality of the parent-child relationship and the sexual behaviour of the children. The survey respondents (15-24 years old) were divided into four categories: the first, 'Type A', category consists of respondents who have never been involved in any sexual act (N=122). The fourth category, 'Type D', consists of those who have had coitus at least once in their lifetime. Between these two extremes are the second and third categories. The following table shows how the two extreme types significantly differ in terms of the quality of the parent-child relationship (Sarlito, 1985a)



Parent-child relationship	Type A (%)	Type D (%)
Quarrelled with parents	9.02	17.65
Hit by parents	9.84	17.65
Child hit parents	0.00	5.88
Stole parents' money	0.00	11.76
Ran away from home	3.28	23.53
Neglected or abused by parents	6.56	17.85
Sexually abused by parents	0.00	5.88

Another interesting aspect of beliefs which might prevent appropriate sexual activity is found in the existing sexual myths among adolescents. In a survey in Jakarta and Banjarmasin by the Department of Social Psychology, University of Indonesia (1987) the following myths are mentioned by the respondents (N=400 in each city):

Coitus (with prostitutes) is healthier and more natural than masturbation	24.5 per cent
If you make love only once or twice, you won't get pregnant	15.5 per cent
You could get pregnant if you swim in a public swimming pool	11.3 per cent
You could get pregnant if kissed by a boy	2.6 per cent

Among the homosexuals there is a belief that STD is only for heterosexuals (Oetomo, 1988:54-56) which is not supported by the facts (Sarlito, 1989).

In my clinical experience there are also beliefs among clients which lead to inappropriate behaviour regarding sexual health. One of the beliefs concerns the concept of coitus interruptus. A teen-aged unmarried couple with indications of unwanted pregnancy reported that they practised coitus interruptus in their love-making, but the interruption was done before the female's orgasm instead of the male's. The next belief concerns the frequency of intercourse: a teen-age pregnant girl said that she had had intercourse only once and she could not understand why that one-time love-making could make her pregnant.

Gynaecologists in Indonesia have reported patients with vaginal infections caused by insertions of a certain kind of local herbs called *pasak bumi*. The myth behind this is that *pasak bumi* tightens the vagina, which is believed to improve the husband's sexual satisfaction. However, the real effect is absorption of vaginal secretions by the herbs so that the organ becomes dry. This dry vagina will be injured during intercourse and the injuries become infected because they are not treated properly (Sarsanto, 1989).

## Conclusions and recommendations

Inconsistency between knowledge and behaviour is hypothesized as leading to cognitive dissonance. With regard to sexual health behaviour there are a number of people who do not change their behaviour in spite of their knowledge on the principles of health and health care.

Results of surveys and clinical experiences show that there are some beliefs which impede the knowledge, and, according to the hypothesis, may work as counter-cognitive elements to the knowledge. In the competition between these conflicting elements, the



beliefs tend to overrule the knowledge, which leads to sexual practices which are inappropriate with regard to health. This phenomenon is found in different kinds of sexual behaviour: adolescent premarital and adult extramarital coitus, personal sexual health care and homosexuality.

To prevent such inappropriate sexual practices in the future there should be programs to re-educate the society; however, such programs must be backed up by careful research on the relationships between knowledge and belief in different areas, cultures and social strata since each sector of this pluralistic society has its own different belief systems. One of the objectives of the re-education programs is to bridge the gap between the ideal and the realistic culture of sex.

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## Chapter 28

# Cultural attitudes to health and sickness in public health programs: a demand-creation approach using data from West Aceh, Indonesia

Yulfita Raharjo and Lorraine Corner

### The role of cultural factors in public health programs

The medical anthropology and public health literatures today indicate broad agreement in both disciplines on the importance of cultural factors in the acceptance of modern Western medical practices and programs in developing countries. The role of cultural factors in public health programs in non-Western cultures emerged as a major issue during the 1950s when there was a marked upsurge in public health activity in the Third World. Inadequate recognition of the nature of culture and social organization and their involvement in public health practices was seen as an important factor in the lack of success of early programs. Polgar (1963: 411-414), for example, identified four fallacies afflicting public health programs of the period: the fallacy of empty vessels: the assumption that client populations did not have pre-existing health customs; the fallacy of the separate capsule: health beliefs and practices were assumed to be separate and independent of the remainder of culture; the fallacy of the single pyramid: a trickle-down theory of communication; and the fallacy of the interchangeable faces: all clients are alike.

The work of Polgar and others has convinced public health practitioners that culture should be taken into account in the design of public health programs. However, the academic literature does not provide practical guidelines on how to identify the specific, significant elements of culture that must be incorporated into, or accommodated within, public health programs. Medical anthropology lacks a strong theoretical foundation that would assist. Wellin (1977:48) notes that the strength of medical anthropology lies in its basic empirical generalizations. The discipline has little theory, relying instead on theoretical orientations, which he defines as 'broad postulates that involve characteristic ways of selecting, conceptualizing and ordering data in response to certain sorts of questions'. He identifies three empirical generalizations that form the foundation of the discipline:

1. the universality of disease as part of the human condition, 2. the fact that all human groups develop methods and roles for coping with disease, and 3. the fact that all human groups develop beliefs and perceptions for cognizing disease (Wellin, 1977:57).

Generalizations (2) and (3) had provided the subject matter for most research until the emergence, during the 1960s, of an ecological approach involving cultural and biological parameters (Wellin, 1977:54). This ecological orientation, which forms the foundation of most current work in medical anthropology, is based on a systems view of the interplay of cultural and biological factors in multivariate ecological systems. While offering a realistic view of the place of the cultural elements of health and sickness in society, this approach shares the major weakness of systems theories in other disciplines. While public health



practitioners can accept that, in a broad theoretical sense, 'all aspects of culture matter' because of the inter-relationships between culture and environment, common sense suggests that, in practice and for particular health programs, some aspects must matter more than others. The current approach of medical anthropology offers few guidelines for the identification of specific cultural attitudes to sickness and health that might have a significant impact on a particular health program.

In developed, Western societies the incorporation of culture into health programs has received limited attention (see Paul, 1977:233), particularly from the medical profession. This may be explained partly by the assumption that the common cultural heritage of medical practitioners and their patients leads them to share a common world view that encompasses, among other things, similar attitudes to health and sickness. However, anthropological studies show that a range of cultural attitudes to health and sickness may be held by different population groups within a particular society, whether in a developed, Western or developing, non-Western society: Polgar's fallacy of the interchangeable faces is universal. There is considerable recent evidence that the divergence between the biomedical model of health and disease that predominates in the medical profession and the attitudes and beliefs about health and sickness among their patients may be as great as that between 'modern' medicine and 'traditional' beliefs in Third World countries. However, it has not been suggested that this poses a major obstacle to the acceptance of modern health care in Western society. Thus, the mere existence of differences between the cultural attitudes to health and disease of health professionals and their clients does not necessarily constitute an obstacle to the acceptance of health programs.

#### **Curative care, preventive care and the role of demand**

One aspect of the difference in the emphasis given to the role of cultural attitudes in health programs between developed and developing countries may be related to the predominance of curative care in the former and the promotion of preventive care by public health and primary health care programs in the latter. Preventive health care programs may be more sensitive to the effect of cultural attitudes to health and sickness because the demand for preventive health care is weaker than the demand for curative care.<sup>1</sup> Because cultural attitudes play an important role in the determination of demand, the more critical role of demand in successful implementation of preventive health care programs leads to a greater need to accommodate cultural attitudes to health and sickness in the design and implementation of such programs. This paper suggests that an explicit demand-focused approach to the problem of the role of cultural attitudes to health and sickness offers a practical guide to the identification of specific cultural attitudes that may have a strong impact on a particular health intervention.

The study from which the data for this paper are drawn shared the increasing interest in the role of demand and the potential of social-marketing approaches in health care in the Third World that has been evident in Indonesia and elsewhere during recent years. Within the health field, interest in the role of demand reflects a concern that past policies

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<sup>1</sup> This appears to be a universal phenomenon. The need for curative medicine is usually obvious to the client and the potential benefits are typically immediate. The need for preventive care, by contrast, is usually not at all obvious to most clients and the potential benefits are uncertain (the clients may never be exposed to the disease against which they are being protected), and to be obtained at some indefinite time in the future.



have been excessively supply-side oriented, concentrating on the provision of facilities and services on the assumption that demand was strong and that their utilization would follow automatically. Interest in the role of demand has been keenest in the context of primary health care programs, which have a stronger preventive orientation and in which problems of under-utilization have been most marked.

Under-utilization of curative services has also occurred in many countries. However, the causes of this appear to be somewhat different. Foster suggests that there is no lack of demand for modern curative medicine in most developing countries and that the cultural barriers to acceptance of modern medicine identified by anthropologists in the past 'must be viewed as stereotypes badly in need of reexamination' (Foster 1984:850). The causes of the under-utilization of curative health services remain on the supply side, particularly in the quality of facilities and services. Services are under-utilized 'not for reasons of physical access or cultural barriers, but because pragmatic clients can distinguish between acceptable and unacceptable health care' (Foster, 1984:848).

To the extent that demand is weak, it is largely a question of lack of effective demand, that is, the clients' inability to pay the monetary costs of modern medical care,<sup>2</sup> rather than the impact of cultural or social barriers. The higher levels of demand for curative services in most urban areas of the Third World, where money incomes and the quality of services are higher but cultural attitudes towards health and sickness are not markedly different from those among rural populations, suggest that cultural barriers are not the major cause of under-utilization of curative health services, for which the remedy lies largely in the provision of better quality, cheaper services and the elimination of poverty.

It is not clear that this applies equally to under-utilization of preventive services, which are also under-used in urban areas and among relatively affluent populations. Weak demand seems to be a more critical factor for use of preventive services. Correspondingly, the role of culture in influencing the demand for preventive health care may be more important. This was the premise upon which the case study of attitudes to health and sickness in West Aceh was based.

### Cultural attitudes to health and sickness in West Aceh

The data used here are drawn from a case study of health and sickness beliefs and attitudes undertaken in several communities in West Aceh, Indonesia in 1986<sup>3</sup> (see Corner and Raharjo, 1986). The study was associated with the development of a program to provide immunization and vitamin A supplements in five districts (*kecamatan*). Data collection instruments included focus groups and qualitative interviews with mothers of children under five (*balita*, in Indonesian terminology), as well as with health staff, traditional healers, community leaders and other residents in several districts within the regency (*kabupaten*) of West Aceh. A survey of 79 mothers of *balita* was also conducted in one district centre with relatively good access to information and health services, in order to

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<sup>2</sup> Including the associated opportunity costs of earnings forgone during the time required to obtain curative services.

<sup>3</sup> Fieldwork was carried out by a research team from the Population Studies Centre of the National Institute for Social and Economic Research (LEKNAS), now known as the Centre for Population and Manpower Studies, in the Indonesian Institute of Sciences (LIPI).



assess the level of health knowledge<sup>4</sup>. The aim of the study was to identify a strategy to increase the active demand for immunization and vitamin A supplements for children among parents of *balita* and within the community in general, such that a significant proportion of parents would actively seek those measures for their children and other community members would support their demands.

Mere passive acceptance of the measures when supplied by the health system was considered to be an inadequate basis for a successful immunization program in particular, because of the critical importance of 'case follow-through' for a full cycle of immunizations. It could form a starting point for the development of an active demand. Information, knowledge and attitudes were considered to be important elements of an active demand for the interventions. The study therefore focused on the general knowledge and attitudes of the population, particularly parents of *balita*, to health and sickness, and on their specific knowledge and attitudes relating to immunization and vitamin A supplements.

### Concepts of health and sickness

Parents considered their children to be healthy if they were normal (*biasa*) and not ill. More parents tended to describe health with a negative statement (*tidak sakit*, not ill, *tidak panas*, not fevered, *tidak kurus*, not thin, *tidak rewel*, not whining or complaining), than the positive description (normal), probably reflecting the fact that minor illness (coughs, colds, fevers, diarrhoea) was the normal condition for many children. Thirty-seven per cent of parents in the survey of mothers described a healthy child with a negative statement and a further 14 per cent were unable to describe any attributes of a healthy child. When pressed further, the remaining group of mothers were able to describe some positive attributes of healthy children, including having a good appetite, being 'chubby', and being active.

Paradoxically, the question on parents'<sup>5</sup> concept of sickness drew the response *tidak biasa* (not normal) or, less often, a description of one of the specific symptoms noted above in the negative statements about health. Perhaps, since parents' perception of health was focused on the absence of specific diseases, the existence of which was clearly 'normal' for many — if not most — children, the description of sickness in terms of abnormality was significant. It referred less to the actual symptoms and more to a worsening of a child's 'normal' condition of ill-health. For adults, illness was identified as something that interfered with normal daily activities and for which they would usually seek some kind of treatment.

In all cases illness was something both 'not normal' and for which some action was required. Some conditions that in medical terms would have been identified as disease, were not regarded by the respondents as illness because they were considered to be normal. An important category from the point of view of the study comprised episodes of childhood illnesses that parents described with the Acehnese term *mublo*, translated in

<sup>4</sup> The study reasoned that knowledge levels would be highest in an area with good access to services and information. It was anticipated that, even in such a centre, levels would be low, allowing identification of major obstacles to the process of health education and social-marketing that had been previously implemented as part of national government health programs.

<sup>5</sup> Although the survey was directed towards mothers, where fathers were present during an interview it was often they who made the response. One finding of the survey was that the role of fathers in decisions about child health was a particularly important one in West Aceh. Mothers would usually consult their husbands before taking any action on children's health care.



Indonesian as *mau pandai*<sup>6</sup>. The Acehnese word literally means 'to buy', while the Indonesian equivalent conveys the meaning 'trying to learn'. These episodes were regarded as a normal phase of a child's development. They were rationalized as the price the child had to pay to enter the next stage of development. The distinction between episodes of *mublo* and of illness hinged on the description 'not normal'. If the child's condition worsened the episode would be regarded as an illness that required treatment. Otherwise the condition was ignored. We noticed a similar attitude to sickness among the aged. Elderly members of the household who displayed symptoms that were described as indicating sickness in other adults (difficulty in breathing, not active, limb pains), were not considered to be sick because their condition was regarded as normal for their age.

The role of neighbours and the traditional Acehnese midwife (*mablien*) in determining when the condition of a child was no longer normal was often important. Parents would begin to be concerned when the child's condition became a topic of local interest. For example, during fieldwork we encountered a sick toddler, whose fever and general malaise did not seem to cause concern to the parents. However, during our visit, neighbours came to see what we were doing and began to discuss the child's condition. Suddenly, the mother began to take notice and by the time we left action had been taken to take the child to the *Puskesmas Pembantu* (local health post). Such an approach carries obvious risks that medical treatment will be sought only at an advanced stage of a serious illness, particularly for diseases involving common but potentially serious symptoms such as fever or diarrhoea.

### Causes of disease

The respondents' classification of the causes of diseases comprised three broad categories. The first consisted of diseases caused by supernatural forces, such as being 'touched' by ghosts or evil spirits (*burong*). Diseases caused by supernatural forces were not considered to be treatable by modern medicine<sup>7</sup> and were invariably referred to traditional healers (the *bideun* — midwife — or *mablien* for women and children and the *tabib* more usually for adults) to be cured by the recitation of special incantations (*raja*) and other traditional remedies. Such diseases were always considered to be serious. They were recognized partly by specific symptoms, but more by the circumstances in which they occurred and the characteristics of the person concerned. Thus, although convulsions were generally considered to indicate an illness caused by supernatural forces, and cases of convulsions in newborn babies (*sawan*) or women who had recently given birth (*droe*) were attributed to such causes, convulsions in an older child following an open wound caused by a nail or a stick, for example, would be regarded as tetanus and the child taken to the *Puskesmas* (government health centre) or the doctor for treatment. One child who suffered a fever after playing outside beneath a particular tree late in the afternoon was said to have been 'touched by a *burong*'.

A second cause of disease was black magic (*sihe* or *sihir* in Indonesia). Some diseases were thought to be caused by the evil actions of persons who bore a grudge against the sufferer. Such cases were described as *di-buat orang*, or made by some person. Only certain traditional healers (*tabib*), invariably men, were considered to have the capacity to

<sup>6</sup> Similar concepts are found in many areas of Indonesia. The equivalent Sundanese term is *endah*, while the Javanese term is *indah*.

<sup>7</sup> Although, when other treatment failed, these cases would usually be referred to the doctor.



cause such diseases. They would be consulted by others who wished to arrange for their enemies to be so afflicted and were consequently feared. They were also considered to be able to cure diseases caused by black magic. We were informed that one local member of staff working with the health department was able to use black magic in both ways.

Diseases in the third category were described as *penyakit biasa*, ordinary diseases. They were attributed to a variety of causes such as bad weather, dust and dirt, heat, or eating the wrong foods<sup>8</sup>. Ordinary diseases were not considered to be serious unless they interfered with normal activity or produced symptoms that were 'not normal'. While ordinary diseases could be treated by the *Puskesmas* or the doctor with modern medicine, they could also be treated by traditional methods, in particular by traditional herbs and incantations (*raja*). In most cases the first phase of treatment for any illness, irrespective of cause, consisted of home remedies, followed by a visit to a traditional healer for *raja*.

Faith in the efficacy of traditional healers remained strong and they formed the first resort for health care for almost all members of the community, except in the most serious cases and in cases of obvious physical injury such as wounds and broken limbs. During an outbreak of diarrhoea that occurred at the primary school in the district centre shortly before fieldwork commenced, the local doctor told us that the headmaster had called in the traditional healer before he called the doctor. Only when traditional methods failed to produce results or the patient's condition markedly deteriorated would the patient be taken to facilities providing 'modern' medical care.

### Concept of prevention

Respondents' concepts of preventive health behaviour were restricted to those diseases that were considered to have been caused by the supernatural. Harmony in their daily lives and in all relationships was accorded a high value. Illnesses due to supernatural causes were believed to be due to a failure to maintain this harmony in some way, through taking wrong foods or passing evil places at the wrong time. Since it was difficult to avoid actions that might upset the spirits and supernatural forces, some respondents used amulets and string bands worn on the wrist or round a child's waist as a means of protection from supernatural influences. Such devices were called *tangkai* or *tangkal* (the term means to prevent).

The use of *tangkai* was confined to illnesses caused by the supernatural or black magic and to high-risk groups, such as mothers and small children. Most parents of children wearing the amulets said that they had fitted the amulets and bands only after the child had fallen ill. Women during pregnancy and immediately after childbirth were more likely to use *tangkai*, even when there was no indication of illness. During a visit to a household in which a young woman had recently given birth, we found all doors and windows tightly closed and a knife, some coloured threads of palm fibre and an amulet beneath her pillow. She explained that the house had to be closed to prevent the entry of bad spirits (*burong*) and that the items under the pillow were to protect her from harm.

<sup>8</sup> Respondents held the usual range of food taboos for specific persons and particular circumstances, and classified foods and drinks generally into hot and cold categories, as well as categories apparently related to the shape (sharp for bananas) of the food. For example, women who had recently given birth could not take hot or sharp foods and had to reduce their fluid intake to a minimum in order to 'dry out' the body.

There seemed to be no equivalent preventive measures for the category of ordinary illnesses. The majority of respondents in the survey (67 per cent) knew of no action that could be taken to keep their children healthy. Sixteen per cent responded in terms of providing good food and one or two mentioned cleanliness and drinking boiled water. Some adults regularly used a herbal tonic, known locally as *majun* (similar to the Javanese *jamu*) that was said to keep them healthy, but this was not considered appropriate for children.

Allied to the respondents' strong focus on illness, was an equally strong association of modern health care facilities, including the local health centre, with curative care. The *Puskesmas* was regarded as a place to which parents would take only a sick child. A question as to why parents had not taken their children there for immunization after being advised to do so by the local midwife, evoked the surprised response: 'because the child was not ill'. Further confusion arose in the minds of those parents who did take healthy children to be immunized, when they discovered that the injections, associated in their minds with curing, caused a fever and actually made the child ill. Most villagers who had heard of immunization associated it with injections<sup>9</sup>. Several parents explained that this negative experience was the reason that they had not taken their children for follow-up immunizations.

Another incident that had a similar result in the minds of the community and further illustrated the strong association between immunization and injections was also related as a further explanation of parents' reluctance to allow their children to be immunized. A small child with a high fever was taken to the doctor for treatment and given an injection, which the villagers described as *imunisasi*<sup>10</sup>. The boy, who was aged around four years at the time of the survey, later became crippled, probably as a result of poliomyelitis which may have been the cause of the original fever. The parents claimed that his condition was caused by the 'immunization' and cited three similar cases of crippled children, apparently due to poliomyelitis, in the same village. A number of other parents who did not specifically refer to this case said that injections should not be given to small children because they were not sufficiently strong to *tahan* (tolerate) them.

### Knowledge about immunization and vitamin A

Although the surveyed district centre had continuing vitamin A supplement<sup>11</sup> and immunization programs, the level of coverage and of knowledge about these specific health

<sup>9</sup> This led to a serious difficulty in checking their level of understanding because of the use of several different terms (*imunisasi*, *injeksi*, *suntik* – injection; *air nasrani* – literally, Christian water, apparently a carry-over from the yaws or smallpox campaigns under the Dutch early in the century; *jarum* – needle) that could have been immunization but, equally, could have referred to any other kind of injection.

<sup>10</sup> It was almost certainly some other form of treatment since doctors usually refuse to immunize a child with a fever even when immunization is not medically contra-indicated, partly because of the possibility that, should the child's condition deteriorate, the immunization will be regarded as the cause.

<sup>11</sup> Aceh has long been associated with vitamin A deficiency and a high incidence of night blindness (known in Aceh as *sapo manok*, literally chicken-blindness), resulting ultimately in xerophthalmia. The typical Acehnese diet staples are rice and fish, with a low intake of leafy green vegetables.



interventions was generally low. Only 30 per cent of the youngest children (who would have been eligible for the government immunization program) in the surveyed households had completed the available<sup>12</sup> course of immunization. Among the eligible children, 44 per cent had received vitamin A supplements. Similarly, the majority of parents knew very little about immunization. Only 52 per cent had ever heard of immunization and only 27 per cent understood that it was for the health of their children. Less than one-third of parents said that they had heard of vitamin A, but most of those appeared to know that it was good for child health.

The village in which the surveyed households lived was the district centre with relatively good access to health facilities and health information locally and by public transport in the nearby regency centre. Several were households of schoolteachers and government servants. Although the level of health information in these households was relatively high, this was not reflected in higher coverage under the programs or in differences in health behaviour. Conversely, the level of health knowledge of parents of some children who had completed immunization courses and who claimed to use the local health centre as a first resort for health care for their children was no higher than the typical low level of their neighbours. There appeared to be no obvious correlation between knowledge about health care and behaviour. The significant difference in these cases seemed to be one of attitude.

The importance of attitudes rather than cognitive understanding also emerged during interviews with Javanese transmigrants on a nearby transmigration settlement. The research team had been told by local health workers that acceptance of immunization among the transmigrants was much higher than among the Acehnese villagers because 'they understand about immunization'. Subsequent interviews revealed that the level of cognitive understanding among the transmigrants was equally low. Like the Acehnese, the transmigrants did not know what specific immunizations their children had received or what diseases these covered, or even the precise purpose of immunization. However, they did have much more positive attitudes towards health care generally and immunization<sup>13</sup>. They knew that immunization was 'good for the health of their children' and they wanted it.

## Discussion

A theoretical model of the components of demand can help to identify areas in which cultural attitudes may play an important role in the acceptance of public health programs, especially those with a preventive orientation. Unfortunately economic models of consumer demand are of little use in the analysis of the demand for preventive health services in developing countries. The conventional neoclassical economic model concentrates on economic determinants, specifically the price of the good or service in

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<sup>12</sup> This indicates completion of a course of immunization appropriate to the age of the child. It does not indicate complete coverage because children who should, according to their age, have received only the first of a course of three immunizations could still become drop-outs from the program.

<sup>13</sup> The two were probably related, since like almost all respondents, they associated both health care and immunization with injections. As is the case elsewhere in Indonesia, local medical staff reported a high demand for injections for the treatment of all illnesses. One doctor reported that vitamin or iron injections were often given to satisfy the demands of patients, rather than for strict medical reasons. Injections were routinely provided by both the doctor and paramedical staff. The health assistant (*mantri*) from the district centre had a thriving private practice in the surrounding area. Injections were an important part of the treatments he offered.

question, the price of competing goods (substitutes) and income, that are measurable in monetary terms. Preventive public health programs, such as the Indonesian immunization and vitamin A programs, are provided free of charge. Non-economic factors, including cultural factors, are incorporated in the concept of 'tastes', which reflect the consumer's 'need' for the good or service and determine the amount of 'satisfaction' that is obtained. Tastes are assumed to be exogenously determined in the neoclassical model.

The New Household Economics (NHE) model offers greater scope for the inclusion of non-economic factors because it generalizes the concept of cost to include non-monetary costs and incorporates the value of time as an integral element of the determination of demand. However, the NHE has not been generally applied to the problem of demand-creation. The subject of demand-creation has largely been left to the field of marketing, from which public health programs have drawn the concept of social marketing. Marketing studies generally focus on the commercial context of demand creation, using a largely empirical approach. We must therefore turn to general principles and commonsense in order to analyse demand creation in a Third-World health context.

The concept of 'felt need' is an important element in the formation of the 'taste' component of demand. Information, knowledge, and attitudes appear to be influential in the formation of a felt need. Information, at least about the existence of a specific good or service, appears to be a minimum requirement for an expression of felt need. For example, although consumers may perceive an undifferentiated need for, say, a cure for a particular ailment, they cannot express a felt need for a specific cure if they are unaware of its existence. Information, however, cannot be equated with knowledge. Knowledge may be regarded as something stored and processed within the mind, something that results from percepts and the formation of concepts (Spradley, 1972:8). It is thus information that has been internalized.

Mere exposure to information does not necessarily result in the acquisition of knowledge. Cultural attitudes, among other factors, are an important influence on both the extent to which exposure to information results in knowledge and the way in which behaviour is related to knowledge. Where new information conflicts with, or contradicts existing knowledge, it is more likely to be rejected.

For example, several respondents explained that the body of a woman who had recently given birth had to be 'dried-out' in order to return to its original size and shape. They therefore had difficulty in accepting the advice of the midwife that they needed to drink a lot of fluids. Others also found it difficult to accept the idea of giving fluids to a child with diarrhoea, since in their view the disease itself was the excessive evacuation of fluids<sup>14</sup>. Health education programs can overcome this phenomenon by introducing new information in culturally-sensitive ways that complement, rather than contradict, the existing views of the target population. For example, a recent proposal for an anti-diarrhoeal strategy in Indonesia compared the dehydration of a child suffering from diarrhoea with the condition of a plant that is suffering from a lack of water. Rural people would have less difficulty in accepting the concept that, just as they would water such a plant, so they should 'water' (*siram*) their sick children.

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<sup>14</sup> Sugar is considered to be a hot food and diarrhoea is associated with an excess of heat in South India. Lozoff *et al.* (1978, cited in Weiss, 1988:13) suggested that honey, considered to be a cool food, should therefore be substituted in ORT mixtures to improve its acceptance among South Indian communities.



Information may be internalized and still not become an effective basis for behavioural change. Again, the role of attitudes seems to be important, although there are other considerations such as the perceived costs and benefits of the particular behaviour. The poor correlation between understanding and practice of immunization observed in West Aceh seemed to be related to the lack of consonance between theoretical understanding and practical attitudes. There is much evidence, from the commercial world of marketing, that knowledge in the sense of a cognitive understanding of the real usefulness of the product<sup>15</sup> is of relatively minor importance in the creation of demand. The role of advertising suggests that attitudes are far more important. For example, consumers do not need to know what is the use of Coca-Cola: they need only recognize that it is a desirable product that certain kinds of people (young, trendy, happy) like to consume on certain occasions. Consumers' attitudes and the 'image' of the product are the key to demand creation.

The different roles of information, knowledge and attitudes in demand creation have important implications for public health programs and particularly for the role of health education. While a high level of community education on health matters may be a desirable goal in itself, it is often a particularly difficult goal to attain, partly because of low levels of general education in the community but also because of the role of cultural attitudes in the extent to which health information will be internalized by the community and become the basis for action. The commercial marketing analogy shows that there is an important difference between education and marketing. The first focuses on changing knowledge, the second on changing attitudes. While both may lead to a change in behaviour, changes in attitudes may be easier to effect. Many health programs in Third World countries rely heavily on health education, using it implicitly as a demand-creation strategy. If the goal is demand creation, especially for preventive health interventions, health education, as distinct from social marketing, may be a relatively high-cost, inefficient strategy.

Even with changes in attitudes, the goal of demand creation for preventive health care still faces the problem of consumers' assessment of perceived costs and benefits. Although many preventive health care interventions are nominally free, as the economists say 'there is no such thing as a free lunch' and no such thing as free health care. The opportunity costs of care remain, particularly the alternative use of the time needed to obtain the health care. For example, several respondents complained that immunizations were only available at times when they were working in the fields. One teacher, who normally left her child in the care of her aged mother, did not take the child for immunization because the hours for immunization clashed with her teaching duties. We observed a child being brought to the *Puskesmas* for (curative) treatment on the front of his father's motorcycle, and realized that families without access to public transport had to rely on their men to transport the children to distant sources of care, since Acehese women, like most Indonesian women, do not normally ride bicycles or motorcycles.

The social costs of health care also need to be considered. Most respondents felt more comfortable approaching the traditional healers than the doctor or *Puskesmas* staff. This was particularly the case for the poorest families. Where the perceived benefits were high,

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<sup>15</sup> In the commercial world, knowledge of the 'usefulness' of certain products (alcohol or cigarettes) may be dysfunctional for the purpose of demand creation.

as in the case of curative care for an illness that was considered to be serious, this was not necessarily an obstacle to their seeking modern treatment. Culturally-sensitive health programs can help to minimize such costs. However, in the case of preventive care, where the perceived benefits were relatively small, uncertain and distant in time, this was probably sufficient to discourage them from seeking care.

The core of the problem of demand creation lies in the weak, uncertain and time-distant benefits to be obtained for families, most of whom were poor, who could readily find alternative uses for their time and other limited resources that yielded much higher returns. Even a well-implemented, culturally-sensitive social marketing strategy may fail to lift preventive health measures high enough on their list of priorities. This suggests that it may be necessary to create a demand for preventive health care by artificial strategies, such as making a completed course of immunization a prerequisite for school enrolment. Such a strategy has already been adopted in Indonesia with some success for the tetanus toxoid immunization of young women seeking marriage certificates. The role of social pressure within the community in increasing effective demand is also likely to be important. The effective manipulation of community leadership and organizations to this end requires a close understanding of cultural attitudes on health and sickness, particularly among different groups within the community.

## Conclusion

This paper explores ways in which public health practitioners may view the role of cultural attitudes to health and sickness in public health programs, using data on cultural attitudes to health and sickness among several communities in West Aceh. Respondents in the study generally described the concept of health, particularly as related to small children, as an absence of particular symptoms. In contrast, they typically described illness as something that was not normal, rather than in terms of symptoms, since many of the symptoms were regarded as normal in young children. Illness was associated with symptoms that represented a deviation from normality and required curative action. However, the point at which a given symptom or constellation of symptoms was recognized as not normal and therefore requiring action was indeterminate. Recognition could depend as much on the perceptions of outsiders as of the parents and might be too late for effective medical intervention.

The illness was classified according to three major causes: those caused by supernatural intervention, those caused by black magic, and ordinary diseases caused by wrong actions on the part of the patient in consuming incorrect foods, or being in the wrong place or doing something at the wrong time. Causes of particular illnesses were usually sought in the surrounding circumstances, although the nature (age, sex) of the patient was also a factor. In general, modern medical treatment was sought only for ordinary diseases, although if traditional healers were unable to cure diseases considered to be due to supernatural causes or black magic, the assistance of the doctor might be sought. Traditional healers were, however, the first resort after self-treatment with herbal remedies for every category of disease.

Preventive action was sometimes taken for diseases caused by supernatural forces or black magic but most respondents knew of no action that could be taken to prevent ordinary diseases. Preventive action for diseases caused by supernatural intervention or black magic was generally confined to high risk groups, particularly pregnant women and young children.



It is suggested that the demand-creation approach provides a useful framework for analysing the potential of cultural attitudes to health and sickness to influence public health programs. It is particularly useful in the case of preventive health care programs because effective demand for preventive care is generally much weaker than the demand for curative care. The paper examines the role of information, knowledge and attitudes in influencing demand through the development of a felt need for health care. Such an approach distinguishes between the role of information and knowledge in health education and in social marketing strategies, suggesting that a more explicit recognition of this may lead to more effective public health promotion through an emphasis on attitudes rather than knowledge.

Other aspects of the demand for preventive health care are briefly considered, particularly consumers' perceptions of relative costs and benefits. Because of uncertain and time-distant benefits compared with the immediacy of monetary and non-monetary costs, demand for preventive health among poor households is likely to remain weak. Artificial creation of a felt need may be needed to induce an effective demand at reasonable cost.

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## Chapter 29

# Cultural, social and behavioural determinants of health and their mechanisms: a report on related research programs

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This paper aims at identifying possible mechanisms whereby behaviour helps to determine the level of health and the chance of survival by presenting findings from field research in Nigeria (Orubuloye and Caldwell, 1975; Caldwell and Caldwell, 1978; Caldwell, 1979), India (Caldwell *et al.*, 1983) and Sri Lanka (Caldwell, Gajanayake, *et al.*, 1989; Pieris, 1989) and from synthesizing analyses based largely on that research (Caldwell, 1986, 1988).

The dichotomy between the first five of these papers and the last two illustrates one of the major research problems of the health transition field. Much of the analysis in the latter papers is based upon comparisons between societies and indicates an important impact on health, especially child health, of the position of women, the attitude of the society toward regulating reproduction, and a radical tradition. Yet field research has little alternative but to attempt to contrast the situation in families where women have a higher status or where family planning is practised. These are not appropriate tests, while no test at all is possible with regard to the radical democratic dimension. The insufficiency of an approach employing only socio-economic differentials in the one society is shown by the fact that children usually have a greater chance of survival when they are born to an uneducated mother in a highly educated society, than when they are born to an educated mother in a largely uneducated society (Caldwell, 1988:4-5). There is a need for research of an anthropological type which takes as its starting point the findings of international comparisons and then explains the situation in a single society. Better still, some anthropologists might carry out health transition studies in very different societies.

These international comparisons are growing in number, especially in the case of education (Caldwell and McDonald, 1981; Flegg, 1982; Hobcraft *et al.*, 1984; Preston, 1985; United Nations, 1985; Caldwell, 1986; Cleland and van Ginneken, 1988). The domination of the field by research on maternal education has been successful in illustrating the existence of a major social dimension to health, but is also disturbing. While it is possible that schooling is the prime vehicle for social and health change, it is more likely that it is merely the characteristic which is most easily studied. There are real differences within a single society and education can easily be quantified, at least in its duration. Yet research seems to indicate that education has its impact on the behaviour of future mothers, less by what they are taught than by changing the type of person that they are, both in how they see themselves and how others see them. If this is so, then two points follow: first, we should be able to measure these transformations directly, and secondly, some of them should also be produced by other influences such as the general nature of the society. Furthermore, even if education proves to be the single greatest influence, it would seem reasonable to make our prime focus the conditions of education (cf. Caldwell *et al.*, 1985 on South India; Caldwell, 1986, especially with regard to the Buddhist Reform Movement in 19th century Sri



Lanka and the agitations among Nayars and Ezhavars in Kerala during the late 19th and early 20th centuries; and Jeffrey, 1987 on Kerala).

Two further points should be made. The first is that education is not merely a proxy for wealth. A substantial maternal educational impact on child survival in Nigeria survived controlling for mother's occupation, father's occupation, mother's father's occupation (i.e. a measure of family of origin and social class), father's education, residential area and access to health services, whether the marriage was monogamous or polygamous and whether the mother lived with her husband or not, and the practice of family planning. The second point is that if the mother's education is largely a measure of care, then we would be unwise to assume that father's education is largely a proxy for income and does not also have a substantial care component.

There is no equivalent abundance of research on how education makes its impact. We have all been greatly impressed by the linear nature of the relationship between the duration of maternal schooling and the reduction in infant mortality, and the related fact that one or two years in a bush school will so affect a girl that a generation later her children have a measurably greater chance of survival. This may be partly a question of numbers and averages. Yet our work in both Nigeria and South India suggests that she is more likely to see herself as part of the modern system which includes the use of modern health services, and that her relatives are likely to allow her to see herself in this way and to permit her to act accordingly. Schools also provide role models for behaviour by disapproving of dirtiness and by sending sick children home with instructions that they should rest or seek treatment.

The comparison of different societies suggests matters which can be researched. With greater independence in Sri Lanka and Kerala, mothers make a higher proportion of health decisions and make them more quickly than is the case in Karnataka. In a society with real seclusion, both children's and women's health is likely to be endangered. There is evidence from Kerala that grass-roots agitation can force health facilities to function more efficiently (Mencher, 1980; Sushama, 1989) and complementary evidence from Nigeria that a lack of social protest can restrict the population served adequately by a health facility (Okediji, 1975). The fact that parental behaviour can be a major factor in child survival is shown by greatly enhanced chances of survival among very deliberately contrived small families in some developing countries (cf. Caldwell and Caldwell, 1978, on Nigeria and Caldwell and Srinivasan, 1984, on China). There is evidence from Sri Lanka and Kerala that employment outside agriculture and the resulting familiarity with commuting and urban facilities may do much to reduce mortality.

### **The available mechanisms**

The purpose of this paper is to present evidence from our own research which suggests how culturally or socially determined behaviour can result in better health or greater chances of survival. The investigation is more likely to be successful if a clear distinction is made between behaviour which maintains health and that which is necessary to restore health or to save life. The former is much more difficult to undertake, especially with a quantitative approach, because the absence of mishap allows little chance of showing its likelihood. It is the latter category where traditional quantitative research is easier because interaction with health facilities frequently takes place; although it should be noted that research in Taiwan showed that the majority of the sick recovered with only home treatment (Kleinman, 1980), while in Sri Lanka 40 per cent did so (Pieris, 1989).

A major problem is not only how to measure care which does not result in sickness, but also how to measure sickness which does not result in death. Demographers have concentrated on death, partly because its occurrence is different in degree from sickness, and a life saved once may continue to be saved. However, they also employ mortality as an indicator of the level of ill-health because morbidity surveys still produce unreliable results in most of the Third World. This would not be a major problem if morbidity and mortality moved together. There have been suggestions that they do not, but that is far from proven. For instance, employing anthropometric measures as a proxy for morbidity, it has been argued that the two displayed different trends in Kerala. However, our re-examination of that situation suggests that much of the evidence does not support this interpretation (cf. Rao, 1986).

We have attempted to estimate levels of morbidity and to ascertain the nature of morbidity in Africa, India and Sri Lanka, with appreciable success only in the latter because the decline in mortality has been brought about partly by a growing consensus as to what morbidity is and by a greater and swifter contact with modern health services which identify the disorder. In most of the Third World, social investigations cannot afford or find the trained medical manpower needed to identify all disease, and specialized studies of this kind would almost inevitably become action programs which would obscure the usual situation.

A substantial part of health transition research will be concerned with the interrelation between individuals and healers. The evidence seems to be that such interaction tends to reduce mortality and probably morbidity as well. This appears to be the case, even where the nearest qualified doctor is far away and most people employ the services of other types of healers. The real problem is a lack of technological research. In South Asia, most modern medicines are dispensed either through traditional healers absorbing them into their pharmacopoeia or through unqualified but non-traditional dispensers. In Sri Lanka, where only a minority of medicines are received in this way, most homes contain pharmaceuticals. We need objective assessments of the likely impact of modern medicines dispensed through unqualified healers and also those used in home treatment. We also need to know whether treatment is continuous. In rural South India, three-quarters of those dying had been seen at some stage by a modern practitioner, but only one-third were still being seen at the time of death. It is not clear whether the discontinuity of service arose from the fact that its continuation would have been unlikely to prove effective.

### **Health maintenance behaviour**

Much of this behaviour can be described as care. Partly because of the nature of the African family and partly because of the structure of rural settlements, child care in traditional African societies was suffused, except for the very young, among a great number of persons. Older sisters played an important role, but some of the care was a question of the whole village taking some responsibility. Education appears to make a woman devote more of her time to child care and be more insistent on directing how other care is managed. This seems to be the major reason for the substantial differential in child mortality between educated and uneducated mothers in a Nigerian village with little access to health care (Orubuloye and Caldwell, 1975). Nevertheless, care and the management of care are difficult to study, without temporarily affecting the situation, and are difficult to measure, except in a negative way such as the incidence of accidents. There is also the



question of the interaction between the carers and the child's ability to care for itself. It is difficult to interpret Indian excess female mortality under five years of age and its decline in the succeeding ten years of age, except in terms of an increasing component of total child care coming from the child itself (Caldwell and Caldwell, 1987).

There are more specialized areas for study within the broader sphere of care. One is that covering cleanliness and sanitation. Survey work is possible, but difficult, in this area. In Sri Lanka, participant observation demonstrated that many toilets were not used, at least in the drier parts of the year, and that communal toilets in the slums and on the Estates were either unclean or blocked. The boiling of water was overreported because, in fact, many people were reluctant to boil it because of inherent and harmful changes that they anticipated and others cooled boiled water by adding cold unboiled water. Soap is used, but often not for washing after defaecation and there is often uncertainty about whether young children follow instructions.

The South Indian research led us to suspect that one of the explanations for the social impact on child mortality might be an understanding of the role of rest. In traditional, illiterate households, moderately sick children, often with a degree of fever, are usually expected to go out and work. Educated mothers were more likely to tell them to lie down, possibly because they remembered schools doing this in the case of sick children.

Another possible differential impact of care lies in the nutrition field. The Indian National Institute of Nutrition's annual surveys from 1975 to 1980 showed a significant proportion of families where the calorie intake of both parents was adequate, but where that of small children was not, the situation being worst for one-year-olds (National Institute of Nutrition, 1987:90-93). Such a situation occurred most frequently in households where the mother was illiterate. This is in keeping with the reports made in our South Indian work employing anthropological approaches (Caldwell *et al.*, 1983:201-202). The investigators believed that mothers with schooling prevented the malnutrition of small children in two ways: first, by ensuring a better distribution of food within the household by age, and, second, by insisting that food be purchased from the market, with priority over other expenditure during the seasonal lean period before the harvest and in drought years. It was not that illiterate households consciously discriminated against young children, but that they misjudged the needs of the young and they took the annual cycle of plenty and want to be natural with an inevitable period of austerity.

The break with what is natural and inevitable appears to accelerate as agriculture is displaced from being almost the sole occupation. Most rural Sri Lankan households were gaining considerable amounts of non-agricultural income 60 years ago and this meant family members commuting to towns and becoming familiar with both transport and urban facilities. It is this, as well as the interrelated high levels of education, which explains the ease with which rural Sri Lankans employ modern facilities, including medical facilities. Sushama (1989) reports a similar phenomenon in Kerala, once land reform guaranteed those who had been farm labourers the possession of the block of land around their house and so freed them to find non-agricultural employment, instead of being bound to the landowner.

### Interrelations with health interventions

It may well be established that the major impact of social and behavioural change is through an interaction with modern health services. Sri Lanka and Kerala probably had the most highly developed traditional health systems in South Asia. We have noted how these

comprehensive systems sensitized Sri Lankans to detecting illness and quickly seeking the assistance of healers (Caldwell, Gajanayake *et al.*, 1989). There is little doubt that the traditional medicine made a major contribution to psychological problems and reduced pain and suffering in chronic complaints, as well as in skin and muscular troubles. However, apart from creating an atmosphere of care and caution, it is very doubtful whether it did much to reduce mortality. In the period when Sri Lanka still possessed its full panoply of traditional health services in the 1920s and when its society was, by Asian standards, comparatively rich and well educated, its life expectancy was little more than 30 years. That picture changed substantially only when government curative medical services became widely available after the Second World War (during a period when mortality was also reduced by the antimalarial DDT campaign). That sensitivity to illness remained and has been a major factor in driving life expectancy up to 70 years, in spite of a per capita income of US\$330 and a density of doctors and nurses no greater than in Ghana, Haiti, Kenya, Philippines, Sudan, Thailand, Yemen PDR, Zambia or Zimbabwe, countries with average incomes higher than Sri Lanka and life expectancies 15 years shorter.

The least researched area in this interaction is not that of behaviour, but of the treatment systems with which the sick interact. In South Asia, even the doctors at government health centres are not all fully qualified in modern medicine. The vast majority of Ayurvedic doctors and nearly all unqualified healers dispense modern pharmaceuticals. Even in Kerala, most persons treated with modern medicines are probably not treated by modern doctors. We need to know much more about these quasi-allopathic systems and their likely impact on health.

The study of treatment must begin with the detection of illness and the actions taken thereafter. In rural South India, we found that in 80 per cent of cases mothers detected illness before anyone else. Many illiterates took no further action until their husbands or mothers-in-law also noticed the illness. Mothers who had been to school were more likely to draw attention to the illness, were more likely to demand that action should be taken, were more likely to believe that a visit to the health centre was warranted and were less likely to be hindered in taking this action. However, these decisions are increasingly being made by the children's parents, rather than grandparents, so that by 1981 two-thirds of all treatment decisions were made by the younger couple. However, only 10 per cent of those decisions were made solely by the mother, in contrast to 50 per cent in Sri Lanka. Illiterate parents-in-law, with no great faith in modern medicine, were likely to allow educated daughters-in-law to use modern medical facilities, partly on the grounds that they understood such things, while feeling no need to make such concessions to uneducated daughters-in-law. One further point about Sri Lanka should be noted. Mothers of babies are often advised and supported in the decision to seek medical help for the child by the visiting family health worker, so the categorization of who was the decision-maker is complex.

In South India, one of the clearest differences between educated and uneducated mothers is that the former obtain medical treatment for their children more quickly after the onset of sickness. The major reason for delay among the illiterates appears to be the prior use of alternative and older methods of curing, such as the chanting of *mantras*, the acquiring of more *yantras* or visits to the temple. The educated may do these things too, but, if they do, it is in parallel, rather than in succession or as the only treatment. Schools are not afraid to attack such practices, partly on the grounds that they are accretions, rather than the true core of religious belief. Yet clearly the schools are secularizing concepts of



health and treatment, just as one role of the Christian missionary hospital in Africa is to diminish the sphere of religion and insist that sickness and its cure are worldly things.

Certainly, at the health centre the educated mother spends, on average, a longer time with the doctor than the uneducated. The doctor can more fully understand what such women are saying and believes them to be understanding what he is saying. Almost inevitably, the educated woman leaves the surgery with a greater understanding of what she is expected to do and a greater determination to follow the instructions and to buy the prescribed medicines when the hospital store cannot provide them. She is also more likely to persist with the treatment.

Yet, in South India, it was at the next stage that the second most important differential between the behaviour of illiterate and literate mothers occurred. Educated mothers were much more likely to return to the doctor to report that the treatment was not working. There were two main reasons. First, the illiterate woman is much more influenced by the Ayurvedic and other older traditions which maintain that the healer correctly identifies the ailment and prescribes the best known treatment. There is no probabilistic element in diagnosis and treatment and, if the child weakens further, its death was inevitable. Secondly, the illiterate, and usually low caste, women feel that they cannot go and tell a doctor that he was wrong.

The situation is different in Sri Lanka, probably largely because of the high general level of education. There is certainly plural treatment, but there is almost universal apprehension that the healer may be wrong in diagnosis and treatment. Indeed, Sri Lankans may be too prone to change. While patients are under treatment, they change the healer on average about every six days, a typical series being from local hospital outpatients' clinic, to modern doctor, and then to a specialist hospital in Colombo. The healers themselves are reluctant that a patient should die on their hands because of a long history of death registration and of post-mortems for unanticipated deaths. One consequence of this is that traditional healers usually send dangerously sick patients to hospital or modern doctors. There is no similar apprehension in rural Africa or India.

In Sri Lanka, modern medicine is now as accessible as Ayurvedic medicine and as cheap or cheaper. Modern medicine is resorted to first in almost 95 per cent of cases of all sudden physical sickness and in a higher proportion of cases still when the disorder appears to be life-threatening. This drops to 68 per cent for mental and psychological disorders, for which exorcism is widely practised, and to 58 per cent for the recurrence of such chronic diseases as rheumatism and arthritis for which many favour Ayurveda (Pieris, 1989).

### **The research frontier**

The following are areas for further research which arise from the programs described here.

Mortality appears to be declining persistently in parts of South Asia where access to modern health practitioners or facilities is very difficult. We need to discover what other access exists to modern medicine such as that prescribed by healers lacking the appropriate qualifications. We need to estimate the impact on survival and, if possible, on health. We also need to know in what circumstances some sick persons are taken to facilities far away, and to identify the kind of people taken.

A great deal more research is needed on those who either do not employ modern health facilities or who delay using them so that we determine the roles of alternative therapies and of economic disadvantage. The true cost of modern treatment, including

often presents for doctors, pharmaceuticals bought privately, time taken off work and transport costs, is rarely calculated.

Research on treatment frequently goes no further than the fact of treatment and its sequelae. A great deal more can be learnt about the interactions between healers and patients and much of this can be quantified.

The most difficult area for research, and one where anthropological or micro-approach work is needed most, is on the care or health maintenance side. The results can be quantified, but the mechanisms will require a great deal of sophisticated observation before their impact can be fully understood.

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## Chapter 30

# Cultural influences on child health in a Delhi slum: in what way is urban poverty preferable to rural poverty?

Alaka M. Basu

### 1. Introduction

In theory, child health and mortality should be a function of two distinct sets of determinants: the resources available to a household and the kind of use that is made of these resources. Resources include money and income of course, but I choose to focus here on child health in groups with very similar levels of income, these levels also being very low: that is, the poor. Once we set such an upper limit to financial resources, the important and relevant resources influencing child health become the non-monetary (even if often also based on broader economic considerations) facilities that a household can command, facilities such as space, sanitation and health services.

On the other hand, once such facilities are standardized, there can still be important differentials in child health because of differences in the household use of these facilities and in the environment within the household. We know that such differences in household behaviour can be stark between the poor and the well-off, but here I try to demonstrate that even among the poor, there can be important differences at the household level which lead to differences in child health and mortality. To do this, I rely on data from a recent study of two distinct cultural groups, one North Indian, from the state of Uttar Pradesh, and one South Indian, from the state of Tamil Nadu, both groups of households living in the same physical environment of a Delhi slum.

At a second level, I consider differences in child health and mortality and in the determinants of these between two culturally homogeneous groups of the poor: those living in the towns and those in the villages. Most of our studies on urban-rural differentials in various demographic indices take no account of the socio-economic heterogeneity of urban areas; the higher socio-economic groups everywhere show lower levels of mortality and fertility and better health. But when one compares the rural population with an urban population which is also poor, the nature of the difference is not as clear. We assume too easily that the villager is more backward or traditional than the town person but, in the absence of much more money, being backward and traditional is not always a disadvantage, especially if it also means having cleaner air to breathe and not tripping over another individual at every step. In this paper I try to distinguish the ways in which the rural population has a relative advantage or a relative disadvantage over an urban slum population in areas relevant to child health and mortality.

Therefore, the overall comparisons attempted here are between four distinct groups: urban poor from Uttar Pradesh, urban poor from Tamil Nadu, rural Uttar Pradesh, and rural Tamil Nadu. Data for the last two groups are based on secondary sources, while for the urban groups I use the information collected in the study mentioned earlier. It should be stressed that I have immense problems with data availability and comparability and



hence what I do is combine intuition with deduction based on simple quantitative information rather than any sophisticated regression or other analysis. The results are therefore often descriptive rather than statistical.

## 2. The health outcomes

In this section I briefly consider three indicators of child health – mortality, nutritional status and morbidity – to detect differences according to household cultural background and rural-urban residence. As already mentioned the urban component of the rural-urban comparison focuses on the urban poor and is based on data from my slum study.

### 2.1. Child mortality

Table 1 presents estimates of childhood mortality from the 1981 census and from my data collected in the Delhi slum. As expected, urban Tamil Nadu, followed by urban Uttar Pradesh, has the lowest child mortality rates. But urban Tamil Nadu and urban Uttar Pradesh are socio-economically very heterogeneous and when one concentrates on the urban poor (columns 3 and 6), the rural-urban differences are startling, being in quite the opposite of the anticipated direction. Our slum population, in spite of the theoretical and self-perceived advantages of urbanization, faces much higher risks of child death than the people in the rural areas from which our respondents consider themselves to have been lucky to escape.

Table 1

Regional and rural – urban differences in child mortality using the south family of model life tables and Trussell's equation

Graduated	urban	Tamil Nadu rural	urban poor in Delhi slum	urban	Uttar Pradesh rural	urban poor in Delhi slum
	1	2	3	4	5	6
$q_2$	0.078	0.116	0.154	0.091	0.165	0.192
$q_3$	0.088	0.127	0.170	0.101	0.183	0.214
$q_5$	0.104	0.146	0.184	0.116	0.204	0.233

Sources: Cols. 1, 2, 4, 5: Registrar General of India, 1988; Cols. 3, 6: Basu, 1988

But before making that last statement with any finality, we need to consider the question of how reliable and comparable the data in Table 1 are. To begin with, rural Tamil Nadu and rural Uttar Pradesh cover a range of conditions whereas the respondents in the slum study belong to very specific areas. The 1981 census report cited in Table 1 also provides districtwise estimates of child mortality and we find that such rural mortality levels in the districts of origin of the Delhi sample are higher than they are for rural areas of the two states as a whole, but are still distinctly and considerably lower than in the slum population under study. Secondly, the rural estimates include a relatively economically heterogeneous group: that is, not all the households are poor. But the bulk of them are poor and therefore socio-economically are more comparable to our urban poor than to urban households in general. Finally, it is flattering to believe that we got much better reporting of

child mortality in our kind of intensive, personalized study than the census could achieve. This is partly true, but we do not think data quality differences are likely to be large enough to explain all the observed differences in mortality.

So we remain with our earlier conclusion, and a rough ranking of our study groups (excluding the urban areas in the two states which are too different in too many ways) in ascending order of child mortality would be: rural Tamil Nadu; urban poor from Tamil Nadu; rural Uttar Pradesh; urban poor from Uttar Pradesh.

## 2.2 Nutritional status

The slum study discussed here included the taking of height and weight measurements of living children below the age of 12. These anthropometric measurements were then converted into nutritional levels using the sex-specific standards of the US National Center for Health Statistics (World Health Organization, 1983).

The results are set out in Table 2. Height-for-age gave very similar results to weight-for-age and is therefore not presented. By both the weight-for-age and height-for-age criteria, in the first year of life, the level of severe malnutrition is higher for Uttar Pradesh than for Tamil Nadu but, beyond the age of one, the South Indian children do considerably worse than their North Indian counterparts. As discussed in section 3.3 this fits in with the better antenatal care, the earlier start of breastfeeding and the earlier weaning in our Tamil sample, which then give way to worse dietary habits in older children.

Coming to achieved nutritional status in rural areas, there is an absence of comparable data but food consumption data discussed in section 3.3 indicate that even here the regional difference is more important than the rural-urban one and that urban areas do slightly better than rural areas in general, so that a rough ranking in descending order of nutritional levels would be: urban poor from Uttar Pradesh; urban poor from Tamil Nadu or rural Uttar Pradesh; rural Tamil Nadu.

### Table 2

### Nutritional classification of children according to weight for age

Age in months	Uttar Pradesh			Tamil Nadu		
	% normal	% with mild/moderate mal-nutrition	% with severe mal-nutrition	% normal	% with mild/moderate mal-nutrition	% with severe mal-nutrition
0-11	49	36	15	61	35	4
12-23	34	54	12	37	49	14
24-59	41	50	9	41	50	9
60-119	39	54	7	31	59	11
120-144	24	58	18	12	63	25

Sample Size:	Uttar Pradesh	1149
	Tamil Nadu	745



2.3 Morbidity

Unfortunately I was not able to get any reliable comparable data on the incidence of illness in the rural areas of North and South India but, as is brought out in section 3.1 on environmental exposure, I would not be surprised if this was lower in rural areas than in the urban slums: higher child mortality in the slums in spite of better health services certainly suggests that this is very likely.

Coming to cultural differences in illness, Table 3 indicates that the overall incidence of illness is higher among Uttar Pradesh children. However, one gets a much clearer picture if one looks at the seasonal incidence of illness, which the data from our six-month longitudinal study allow. Households were visited every two weeks from July to January and the main finding was that during the winter months, the children from Tamil Nadu were more likely to be ill than the children from Uttar Pradesh, whereas during the relatively warm and wet months, the converse was likely to be true.

An explanation for this pattern emerges in Table 3. On the whole, the Tamil children were more susceptible to respiratory infections, which reach their peak at the onset of winter. The Uttar Pradesh children on the other hand were more exposed to gastro-intestinal disorders, which are most common during the rainy season. In Section 3.1, I discuss some of the reasons for these differences as well as my reasons for expecting rural illness conditions to be better, even if only marginally, than those in urban slums.

My ranking in ascending order of morbidity level would therefore be: rural Tamil Nadu; rural Uttar Pradesh; urban poor from Tamil Nadu; urban poor from Uttar Pradesh.

Table 3  
Regional differences in the incidence of illness

Age group of children in years	Mean no. of ill- nesses in six months	Seasonal incidence of illness					
		% with respiratory ailments			% with gastro-intestinal ailments		
		Aug.	Oct.	Dec.	Aug.	Oct.	Dec.
<hr/>							
Uttar Pradesh							
0	3.2	6.0	14.8	9.6	17.0	11.3	10.6
1 - 4	2.9	6.7	11.5	12.0	12.5	7.9	2.6
5 - 9	1.8	4.9	7.9	6.3	2.7	3.0	2.5
All ages	2.4	5.8	10.3	9.1	8.5	6.2	3.7
Tamil Nadu							
0	2.4	7.7	29.6	21.6	20.5	4.6	13.5
1 - 4	2.5	8.3	12.4	15.2	7.1	3.7	4.0
5 - 9	1.4	8.6	8.0	10.3	2.0	1.1	1.6
All ages	2.0	8.4	12.2	13.9	5.9	2.5	4.2

Sample Size: Uttar Pradesh 882  
Tamil Nadu 445

3. The influences on child health

In this section, I try to understand some of the reasons for the regional and rural-urban differences in the indicators of child health brought out in Section 2. I start with the

assumption that child health is influenced by four categories of determinants: environmental exposure to infection, maternal care, food intake and medical care. I then look at cultural and rural-urban differentials in these four classes of determinants and try to link these differentials to differentials in health and mortality.

### 3.1 The physical environment

This section begins with a description of the physical environment of our urban study area because it represents one extreme in terms of exposure to infectious agents. Later, I make a rural comparison wherever possible and demonstrate the relatively (but only relatively) better physical conditions that prevail in the villages. Since we are talking of the physical environment only in a context relevant to child health, I concentrate on three aspects of this environment: the availability of space and sanitary services; the use of space and services; and household level practices relevant to sanitation and hygiene. The first is naturally common (in principle) to both our cultural groups, but in the case of the other aspects I also consider important cultural differences. On the other hand where rural-urban differences are concerned, I conclude that the availability of space and sanitary services is the determining factor, with our urban households having shed very few of the household practices of their village counterparts.

The urban survey was conducted in a large multicultural resettlement colony (which is for all practical purposes a slightly glorified slum) situated in East Delhi on the newer and more isolated side of the Yamuna river. The colony was set up during the Emergency in the mid-1970s to house migrant squatters from all over the city. There are three adjoining colonies on a total area of about 815 hectares.

All the households in this area belong to the lower social and economic classes. They were provided with the minimum facility of public water and toilets and then left to do with their 25-square-yard plots as they thought fit. Each household was also given a small loan (2,000 rupees) to help such thoughts to move in the direction of a habitable dwelling. The result is that about half the households have built a permanent cement structure, in a few cases even two-storeyed, while the rest are content with a semi-permanent or worse hut of sorts. Twenty five square yards is not a large area, especially for a mean household size of about five (more when one excludes the single male households), and most homes therefore consist of a single room for the conduct of all household and even some business activities. However, much activity also spills out onto the narrow lanes between two rows of houses, so that in the daytime of the winter months at least, the seeker of privacy finds it relatively easy to be the sole occupant of his room at a stretch.

The colony we studied is divided into 36 blocks of about 500 plots each. The plots are arranged side by side with no open spaces between, in long rows of about 20 houses per row. With such overcrowding and the poorly ventilated structures that have been built (few homes boast more openings than a single door), it is not surprising that to most households these plots represent no more than a legal physical shelter. However, a few of the more enterprising ones have also started small businesses in their rooms during working hours.

The colony is now much larger than originally planned, because of the influx of new arrivals from other parts of Delhi as well as from other parts of the country. These households have migrated here because of the public amenities that the place offers and because of kinship or other ties with the original households. These newcomers have set up their little huts in clusters around virtually every block and have been quick to seek to legitimize their position by employing every stratagem to acquire that ultimate proof of



identity and residential status, the ration card. This kind of uncontrolled expansion cannot but lead to the pessimistic conclusion that under present conditions it is impossible for the urban poor to have an acceptable level of infrastructure and services.

In our area, the growth means that the already meagre public facilities are being severely strained and such strain, together with the day-to-day lifestyle, of the slum dwellers has had its greatest negative impact on the general level of sanitation and hygiene. This level is appallingly low and the dirt and the squalor of the lanes and surroundings are in shocking contrast to the interiors of individual homes, which are often spotlessly clean in spite of the severe constraints on resources. A sparkling stainless steel utensil is the first symbol of such house pride and many homes estimate their welfare levels in terms of the number of such utensils that they can acquire. Such contradictions between household and social hygiene are well brought out in a recent Delhi slum study (Shekhar, 1983) in which homes were classified according to the levels of cleanliness of their interiors and their immediate exteriors: 17 per cent of the homes were rated as poor on a scale of sanitary conditions inside them, while 40 per cent were described as having poor conditions immediately outside the house.

The local government has made provisions in its master plan of the area for schools, hospitals, markets, etc. and several of these facilities have actually been realized. And yet this is not nearly enough, as already mentioned. For example, every lane has one or two public water taps and every block has access to a row of public lavatories. In addition, some of the more affluent households have installed their own water supply in the form of a shallow handpump outside their homes. However, there is no space for private bathrooms or toilets and even though there are public toilets near each block, not everyone uses these, and young children certainly do not. Even several of those who claim that they do use the public toilets actually mean that they squat outside the toilets rather than outside their homes. This is not surprising considering that these toilets are not cleaned regularly and do not have a sufficient water supply. Another reason for the distressingly insanitary local environment is the garbage thrown all over the place. For this the blame lies partly with the municipality for not cleaning the streets or clearing the garbage dumps regularly and partly with the people who have few inhibitions about chucking rubbish outside their doors.

This is the physical environment common to both cultural groups. Next, we have the cultural differences in exposure to infection which exist in spite of a common environment and are reflected in the morbidity and mortality differentials discussed in earlier sections. To consider the relative Tamil disadvantage first, the greatest threat seems to be from the frailty of the physical shelters that make up the homes in this group. In our area, over 70 per cent of the Uttar Pradesh households have built a *pukka* (solid or cement) structure to house themselves, whereas less than half the South Indian families have been able to do so, not necessarily because of greater financial constraints but also because of differing priorities. Given the severity of the Delhi winter, one wonders how much this greater exposure to the elements accounts for the higher level of respiratory illnesses in the Tamil children (see Section 2.3).

On the other hand, the disadvantage is towards the north Indian child in the case of that other killer, gastro-intestinal disease, and once more one must look for causes in the physical routes of transmission of this group of illnesses.

Contaminated food and water are the main sources of most intestinal infections and Black (1984) has stressed the role of sanitary waste disposal, avoidance of faecally

contaminated water and objects, and the adoption of personal hygienic practices such as hand washing, in controlling their spread. On most of these counts, our sample households from Uttar Pradesh seem to do somewhat worse than those from Tamil Nadu. For example, while over 80 per cent of the South Indian households reported taking the trouble to throw their garbage on the official garbage heap in the colony (from which the municipal vans are supposed to collect it regularly), the corresponding figure for Uttar Pradesh was only 67 per cent. The rest just drop their rubbish outside the front door where it rots indefinitely either on the pavement or in the water drain which runs along each row of houses. The swarms of flies which collect on such exposed garbage cannot but be an important vehicle for gastrointestinal ailments, especially as they flit between the garbage, the faeces in and around the public toilets and lanes, and the homes. One recalls clearly the all-too-familiar and depressing sight of young children periodically brushing away the flies which stubbornly settled on their bodies as they played outside their homes.

Then there is the natural spread of faecal contamination because of the relatively poor use of the public taps and toilets by the women and girls from Uttar Pradesh (for very young children, both regional groups keep away from the inconvenient public facilities). For instance, even among girls aged 10-12 years, as many as 51 per cent use the space just outside the home for urinating; 25 per cent even defaecate here. Admittedly, the Tamil girls' practices also leave much to be desired, but they are still better than the northern Indian girls, the corresponding figures for them being 36 per cent and 15 per cent.

Custom and ignorance account for other differences in household practices detrimental to health. For example, only about 18 per cent of Uttar Pradesh households reported boiling the water given to babies while for Tamil Nadu this figure was close to 30 per cent. Especially coupled with the fact that about 84 per cent of the North Indian women delay the onset of breastfeeding for three or more days (this is 54 per cent for the Tamil women), and water constitutes an important ingredient of food during these first days, this means that the chances of neonatal infections are much greater for the North Indian babies.

On the other hand, there is one potentially harmful domestic practice which differences in life style cause to be more common among the Tamil women: this is the practice of storing cooked food for some time. Over a quarter of the households from Tamil Nadu reported that food is cooked in their homes only once a day, while for Uttar Pradesh close to 96 per cent of families cooked their food afresh at every meal. Given the generally unsanitary environment, the heat in the summer and the complete absence of food preservation devices such as refrigerators, one would expect a negative impact on the Tamil homes because of this household concession to working women, but Section 2.3 did not find the incidence of gastro-intestinal illness to be higher in this group, so perhaps this is not as dangerous as it seems in theory.

We come next to rural-urban differences in the physical environment. Here, to my mind, the major and critical difference is in the availability of space. Rural hygienic and sanitation practices may leave as much (perhaps even more) to be desired as in the urban slums. But their effects are multiplied in the urban slum environment where one must, so to speak, face the consequences of one's actions right at one's doorstep.

Consider the statistics: according to the 1981 census there were 57 households per square kilometre in rural Tamil Nadu and 55 in rural Uttar Pradesh; corresponding urban figures are 553 and 771. And in our urban slum we have a density of about 25,000



households in an area of about 815 hectares, that is, about 3,000 households per square kilometre! This is the macro picture. When one looks at the overcrowding within households, the situation is even worse. The Registrar General's (1981a) survey estimated that about 60 per cent of Tamil and 30 per cent of Uttar Pradesh households lived in one-room homes: our slum figure is close to 100 per cent. This imbalance is redeemed somewhat by the quality of the housing: only 30 per cent of the homes in rural Tamil Nadu and 20 per cent in rural Uttar Pradesh have solid roofs and walls, compared to about 50 per cent and 70 per cent in our study, but the redemption is actually smaller than expected because the climate in Delhi is much harsher than it is in the original areas of the study population.

The effects of such overcrowding on health and mortality can well be imagined. Indeed overcrowding is now considered to be an important intermediate variable in the observed link between fertility and child mortality in poor populations. Historically too, Wrigley (1969) would attribute the higher urban mortality during the industrial revolution in Europe to the population density increases associated with urbanization rather than to industrialization *per se*: for example, the mortality in slums in large cities (which were more often commercial than industrial centres) was significantly higher than in industrial areas where people lived in relatively small villages and towns. Similarly, in the mid-19th century, the crude death rate in Glasgow was more than twice as high for families living in 1-2 rooms as for those in 5+ rooms.

### 3.2 Child care

In practice, this variable is reflected in the regional and rural-urban differentials in environmental exposure, nutritional intake and health care use, but here we consider a few more direct measures of child care which are not clearly specified in the other sections. The hypothesis is that everyday (not just in cases of illness) maternal care and attention is an important determinant of child health and mortality and that there are important differences in such child care practices in different groups.

Our findings suggest that the critical factor is the mother's occupational status, defined in terms of whether she works at all and if she works, the kind of work she does. On both these counts, in both urban and rural areas, the Tamil child is more disadvantaged than the child from Uttar Pradesh. The mother of the former is much more likely to be economically active and also much more likely to be active in occupations which are incompatible with child rearing. For example, the Registrar General of India's (1981a) survey found that about 25 per cent of children of working mothers in the rural areas were looked after by 'no one' when the mother was at work, whereas this figure was only around 6 per cent for rural children in Uttar Pradesh. And if one takes into account the fact that the North Indian woman is much less likely to work than the South Indian one, then the conclusion is that the average North Indian child can claim much more of its mother's time and attention than its southern counterpart.

In our urban slum study the differentials were similar. About 28 per cent of the Tamil children aged 5-9 years who had working mothers fended for themselves during the day, as opposed to 5 per cent of the Uttar Pradesh children. This differential is explained by the *kind* of employment favoured by the women in the two groups. On the whole, the women from Uttar Pradesh, if they earn an income at all, are likely to do so from activities which involve a minimum interaction with the outside world and especially with men from the outside world. Almost all such employment is household-based and generally centres

around traditional feminine skills such as sewing, food processing or the manufacture of various knick-knacks for sale by others. Indeed, there is a very interesting regional differential in the household ownership of a sewing machine, 22 per cent for Uttar Pradesh and 8 per cent for Tamil Nadu. This appliance is much more likely to be present in a North Indian household, not because of such a household's greater wealth, but because of the North Indian culture itself which views the ability to sew as an important qualification in a woman not only because of the household savings possible from its use but also because sewing for an income is one of the few respectable occupations that these women can usefully take up, based as it is in the home, and requiring contact with an almost exclusively female clientele.

On the other hand, the women from Tamil Nadu are much more catholic in the kinds of employment they are willing to consider, domestic service being one of the most popular; and have few inhibitions about taking on jobs which involve interacting with the extra-domestic world. But these are also the kinds of jobs most incompatible with childbearing and childrearing and explain at least part of the lower fertility in the Tamil sample (see Basu and Sundar, 1988) as well as the greater physical neglect of children.

**Table 4a**  
**Percentage of children below the age of 12 who go to school or pre-school centres**

Age group of children in years	Uttar Pradesh		Tamil Nadu	
	boys	girls	boys	girls
3-4	57	46	51	46
5-7	92	86	88	79
8-9	100	96	83	63
10-11	97	86	68	38

This neglect occurs in an even more invidious form when one examines the relationship between maternal occupation and child schooling, especially if one believes that school attendance has a bearing, even if indirect, on child health. Our study found that, in sharp contrast to the situation in the two states of origin, it was the Tamil child that faced the greater disadvantage in education, in terms both of absolute numbers going to school and of the sex differential in school attendance rates. Tamil boys and girls (but especially the girls) are progressively removed from school much more often than are the children (especially the boys) from Uttar Pradesh. Indeed, in the 10-12 year age group, only 38 per cent of the South Indian girls are in school. Ten to 12 years is still very young and Table 4a becomes even more pessimistic about the welfare of girls when looked at in conjunction with our other data. These girls in the 10-12 year age group are most likely to be removed from school if their mothers work or have several children. In both cases – the motivation is clear – the girls are kept at home not because school is an unattractive proposition but because there are now new demands on their time and labour. Table 4b makes this plain enough: fully 37 per cent of the non-school-going girls aged 10-12 years from the South Indian sample are non-school-going because they either go out to work or are needed at



home. And this is still the preadolescent stage: with rising age, the responsibilities and duties can only increase.

**Table 4b**

**Children who do not go to school according to the main stated reason for non-attendance**

Region of origin	Sex	age group in years	child employed	Reasons for not going to school		
				needed at home	cannot afford	school too far
Uttar Pradesh	Boys	5-9			13	
		10-12			20	
	Girls	5-9		5	17	
		10-12		6	24	12
Tamil Nadu	Boys	5-9	5	9	19	
		10-12	25		21	
	Girls	5-9	4	19	21	3
		10-12	29	8	31	2

All this compounds the ill-effects on child health of non-attendance in school; not only are these children missing the educational experience which can influence their knowledge and attitudes in health-related areas, but the additional physical load that they bear also has a directly detrimental impact on their health, reflected partly perhaps in the higher child mortality levels in children of working mothers.

Our rough ranking of child welfare as measured by the care variable in ascending order of neglect would therefore be: rural Uttar Pradesh; urban poor from Uttar Pradesh; rural Tamil Nadu; urban poor from Tamil Nadu.

### 3.3 Nutritional intake

Our data suggest that the South Indian child begins life with a slight nutritional advantage but soon loses out to the North Indian child. The first Southern advantage begins during its mother's pregnancy: as many as 65 per cent of our Uttar Pradesh women, compared to 38 per cent of the Tamil women, reported that they had reduced their food intake during the last pregnancy. More importantly, only 5 per cent, compared to 30 per cent of the Tamil women, had actually *increased* their food intake. The remaining women in both groups continued as usual, with not even the occasional indulgence of some special food during the pregnant state.

Next, we have the pernicious Indian practice of the delayed initiation of breastfeeding. This custom has become so entrenched that most women have not questioned its rationale enough to be able to answer any queries on the issue, beyond sometimes saying that colostrum is bad for the child. In our study, the majority of women in both our groups tended to delay the start of breastfeeding until the third day after birth, but the women from Tamil Nadu seemed to be a bit more open to change in this regard: as many as 40 per cent

of the women below 30 (10 per cent of those from Uttar Pradesh) had accepted that breastmilk was good for the child from the very day of birth.

Finally, the mean length of breastfeeding is significantly lower (at 19 months) for the Tamil children than it is for the children from Uttar Pradesh (at 24 months). While we would attribute this regional differential to both convenience (a much larger proportion of the Tamil women work outside the home and therefore cannot indefinitely feed their children), and to the greater modernization of the Tamil mothers (caused apparently by their higher levels of occupation outside the home; see Basu and Sundar, 1988), it must be admitted that it is difficult to know how to interpret the connection of these breastfeeding differentials with final nutritional levels. For instance, it may well be that because of their earlier weaning, Tamil infants get a more balanced diet than their North Indian counterparts. In our sample, the Tamil mothers reported starting their children on solids at an average age of 9.6 months while the corresponding figure for the Uttar Pradesh mothers was 12.8 months.

Then we come to the differences in post-weaning dietary practices. Here the regional or cultural differential is much more important than the rural-urban one, and probably accounts at least partly for the north-south differences in nutritional status discussed earlier; on the whole, the southern diet appears to be much worse than the northern one. While practical reasons are certainly important, custom seems to be the main culprit for deleterious food habits. One important way in which this regional differential occurs is through rice being the staple and virtually sole cereal in the South Indian diet, while North Indians usually consume more than one cereal together with a wide range of legumes and pulses. For example, in our longitudinal study, only about 20 per cent of the Uttar Pradesh children aged 5-8 years reported having had just one kind of cereal on the previous day, while for Tamil Nadu this figure was closer to 80 per cent. Regional rural diets tell the same story. The Registrar General of India's (1981a) survey found that the diet of children aged five years in the Uttar Pradesh villages included rice in 80 per cent of cases and wheat in 94 per cent of cases, while the corresponding figures for rural Tamil Nadu were 95 per cent and 5 per cent respectively. More detailed diet surveys by the National Institute of Nutrition (Gopalan *et al.*, 1971) confirm the existence of a nutritionally superior North Indian diet; for instance, rice accounted for over 80 per cent of the cereal consumption in Tamil households compared to only 36 per cent in the Uttar Pradesh households. Further dietary differences are set out in Table 5. In fact, from its all-India nutritional surveys, the National Institute of Nutrition (Gopalan and Raghavan, 1969) has concluded that this regional differential in cereal consumption is linked to the regional patterns of severe protein calorie malnutrition in the country, with levels being much higher in the predominantly rice-eating areas of South India, West Bengal and Orissa than in the rest of the country where households generally eat two or more cereals and especially a variety of pulses and legumes. As discussed by Chakravarty (1982), poverty alone does not explain this pattern because some areas where a multiplicity of cereals is eaten, such as eastern Uttar Pradesh and Madhya Pradesh, have similar if not lower standards of living compared to the areas where rice forms the bulk of the diet, and there is therefore a poor intake of lysine and other essential amino-acids. Even the greater incidence of non-vegetarianism among Tamils, in the urban poor according to our data as well as the rural people according to the Registrar General's (1981a) study cited earlier, may be something of a disadvantage because, given the high costs of non-vegetarian foods, too little of these are consumed and therefore much less



protein is obtained than among the predominantly vegetarian Uttar Pradesh population that gets its protein from much cheaper pulses.

**Table 5**  
**Regional differences in nutritional intakes**

		Uttar Pradesh	Tamil Nadu	Recommended intake
1	Average daily per capita consumption of cereals (gms)	448	356	370
2	Average daily per capita consumption of pulses (gms)	55	16	70
3	Average daily per capita consumption of milk and milk products (gms)	91	26	180
4	Average per capita calorie intake per day	2307	1498	2400
5	Average per capita protein intake per day (gms)	66	36	44
6	Rural areas - monetary value of annual cereals and pulses consumed per household	880	349	

Sources: Rows 1 and 5: Gopalan *et al.*, 1977. Row 6: Schofield, 1979.

But there are also a few ways in which the children from Tamil homes face better nutritional prospects than those from Uttar Pradesh. The cultural difference in the initiation of breastfeeding has already been mentioned. Secondly, there is the discrimination against children in the intra-household distribution of food. The negative effect of the common South Asian custom of women eating last, in a situation of limited resources, is well known. But where children are concerned, in our own study we found that only in a small percentage of cases were children not among the first family members to be fed. However, there was also a regional difference in this: in households from the southern state of Tamil Nadu, children were given first preference in virtually all cases. There was a similar regional differential in the sex discrimination in non-vegetarian food consumption by children: in 13 per cent of Uttar Pradesh households the boys ate meat and eggs while the girls did not; in the Tamil sample, there was no such household. However, as already mentioned, the functional significance of differences in the consumption of such scarce food items as meat and eggs is not clear.

In spite of these two redeeming features, on balance it appears that the Tamil children fare worse than those from Uttar Pradesh in overall food consumption and the observed regional differences in achieved nutritional status discussed earlier are therefore not unexpected.

Coming to rural-urban differences, unfortunately we do not have much comparable information. But the little that there is suggests that the urban child (even the urban slum child) has a slight advantage over the rural child. To begin with, delays in the initiation of

breastfeeding are the cultural norm all over the country and any deviation from this norm is a reflection of greater modernization and education or knowledge, qualities which are much more likely to characterize the urban than the rural mother. But durations of breastfeeding are in the direction of an advantage to rural children. However, even here the urban-rural dichotomy may overstate the distinction. According to a World Health Organization (1981) study in Andhra Pradesh, while 31 per cent of urban middle class mothers felt that a child should continue to receive some breastmilk beyond the age of 18 months, compared to 97 per cent of rural mothers, the corresponding figure for urban slum mothers was very close to the rural one at 91 per cent. Similarly, about 80 per cent of the urban slum and 95 per cent of the rural children aged 18 months were actually receiving breastmilk compared to only 44 per cent of children of this age from the urban middle class.

On the question of introducing outside food too, once more the urban poor-rural similarity is greater than the overall urban-rural one. But still this similarity is not total and whatever difference there is in favour of the urban poor in the World Health Organization study just cited, 27 per cent of the slum mothers believed in beginning breastmilk supplements by eight months compared to only 10 per cent of rural mothers.

In the diets of older children, once more the North-South difference is probably greater than the rural-urban one within each regional group. But whatever difference there is between the villages and the urban slums seems to be in a direction favouring the children in urban slums (see also Gopalan *et al.*, 1971). The main urban-rural difference seems to be in calorie rather than protein intake, suggesting that it is the quantity of food, rather than the quality, which distinguishes the rural from the urban slum meal.

Such differences in the amounts of food available are also affected by one big disadvantage in the rural areas, seasonality in food availability. For example, one village study in rural Tamil Nadu found that the daily per capita intake of calories in weaned pre-school children ranged from 753 during July-September to 1,032 during April-June (Sunderaraj *et al.*, 1969). Since urban diets on the other hand are almost entirely derived from purchased foods and since there are no great seasonalities in urban income-earning capacities, such fluctuations in food intake are much rarer.

We would therefore rank our four groups according to decreasing nutritional intake as follows: urban poor from Uttar Pradesh; rural Uttar Pradesh or urban poor from Tamil Nadu; rural Tamil Nadu.

### 3.4 Health care

Two components of health care services affect child health and mortality: the availability of such services and their level of use. To take the question of availability first, the rural-urban divide is sharper than the regional one, especially in the case of our slum study where both regional groups theoretically have access to the same level of services. The Registrar General of India (1981a) has calculated that in 1978 in rural Uttar Pradesh, 9 per cent of the population lived within two kilometres of a medical facility and 17 per cent would have to travel ten or more kilometres to reach such a facility; the corresponding figures for rural Tamil Nadu were 9 per cent and 25 per cent respectively, i.e., Tamil Nadu did slightly worse. But in terms of per capita existence of services, regardless of distance, as is described later, Tamil Nadu has a clear advantage; and distance also becomes less important because in Tamil Nadu 56 per cent of villages boast a motorable road compared to 15 per cent in Uttar Pradesh.



Contrast this rural situation with that facing our urban poor, which is worse than that in urban areas in general but still good by all-India standards. The details are given elsewhere (Basu, 1988), but to summarize briefly, our slum covers a population of about 125,000 packed in an area of about 815 hectares and has potential access within a couple of kilometres to seven government dispensaries and about 30 private practitioners (not all of them formally qualified). In addition, in principle, the colony is connected by road to all the hospitals and health facilities that the city has to offer. Finally there are the *dais* or traditional birth attendants: every block of 500 households has one or two of these; but so do the villages, therefore there is no real rural-urban differential in this.

Once access to health services is controlled, our data suggest that their use varies according to several socio-economic and cultural factors and that these variations are more easily overcome for some kinds of services than for others. I have discussed this question in greater detail elsewhere (see Basu, 1990); here I only point out the broad differences in use between our two regional groups.

The health care use variable includes behaviours which prevent as well as cure disease states, and our results indicate that cultural background affects the former group of behaviours in general, while in the case of the use of curative (especially modern) medicine, the primary determinant of cultural variations is the availability of services rather than the willingness to use them.

To begin with prophylactic immunizations, columns 5 and 6 of row 1 in Table 6 indicate that for both regional groups, overall immunization levels are very similar and astonishingly high (as they are for rural and urban areas of the two states of origin: see columns 1, 2, 3, and 4 of row 1). Even when we consider all live births (as opposed to only living children covered in Table 6), percentages immunized are lower but there are no major regional differentials.

All is still not well however; for the catch-all term of 'any immunization' includes the smallpox vaccination which was compulsory and effectively delivered when these children were born. And when we look at a more relevant and specific immunization such as triple antigen (see row 3, cols. 5 and 6; note that the same findings apply to the polio and BCG vaccines), we are very far from the goal of universal vaccination which UNICEF would have us reach by 1990.

This same kind of deception is likely when one looks at data from the states of origin. As rows 1-4 of Table 5 indicate, it is again smallpox which is the great equalizer between north and south, and urban and rural. Where triple antigen, polio and BCG are concerned there is a yawning gap between the two states; and for both states, levels of protection are nothing to boast about.

But in our sample, where services are controlled, the North Indian child does slightly better than the South Indian one even when one looks at the specific kinds of immunization. Where then is the important cultural difference? The difference lies in perseverance and in the sharp fall in the numbers of children allowed to take the full recommended course of all three doses of vaccine (see row 4, cols. 5 and 6 of Table 6). This stresses once again the social constraints on effective vaccine use discussed by Mosley (1984). Our field information suggested that the woman from Uttar Pradesh was much more alarmed by the adverse side effects of immunization than was her Tamil counterpart who, for various reasons, was more difficult to contact for the first dose of vaccine but who,

once contacted, did not baulk as vehemently at the fever which resulted in a child after immunization.

Table 6  
Immunization status of children: Regional and urban-rural differentials

		Children aged 5 years			Children aged 5-9		
		urban Uttar Pradesh	urban Tamil Nadu	rural Uttar Pradesh	rural Tamil Nadu	urban poor from Uttar Pradesh	urban poor from Tamil Nadu
		1	2	3	4	5	6
1	% with any immunization	95	98	92	99	83	82
2	% with smallpox vaccination	92	91	91	95	68	70
3	% with at least one dose of DPT vaccination	21	42	3	15	49	41
4	% with all doses of DPT vaccination	na	na	na	na	14	28

na = not available

Source: Cols. 1, 2, 3, 4: Registrar General of India (1981a)

This was the situation in our urban slum environment with relatively good access to health services and relatively high access to outside information. In the absence of these, one wonders what continuation rates would have looked like in the rural areas, if they had been available to complete row 4 of Table 6, especially for Uttar Pradesh.

There is one more area where there are important cultural differentials in the use of preventive health care. This is the area of childbirth. According to the 1979 survey of infant and child mortality (Registrar General of India, 1981a), fully 94 per cent of rural Uttar Pradesh births in 1979 had been delivered by untrained personnel while in rural Tamil Nadu the figure was 50 per cent. This differential is not explained by accessibility alone as is clear from Table 7 based on our survey data. Even for the births which occur in Delhi and which therefore theoretically face the same institutional choices, the Uttar Pradesh woman clings to the home as the best locale for a delivery, though admittedly the hospital stands a better chance than it does at the region of origin. For Tamil Nadu on the other hand, births in Delhi are four times more likely than those for the Uttar Pradesh group to have occurred in hospital.

Even more interesting is the nature of the assistance received during delivery by the two groups. The paramedical health worker occupies a disappointingly low place in all cases: the women will only accept a trained doctor or the other extreme, an untrained though experienced neighbourhood helper. The great reliance on the traditional birth attendant or *dai* (44 per cent for Uttar Pradesh and 48 per cent for Tamil Nadu) is expected given the large number of deliveries. What is surprising is the frequency with which the



friend, neighbour or relative comes to the rescue (39 per cent for Uttar Pradesh and 18 per cent for Tamil Nadu), even among the more recent births. While this is a positive reflection of the informal networks of help and co-operation which the women, especially from Uttar Pradesh, have built up in the city, it does not speak too well for the persuasive powers of the existing health services, not just in ensuring a safe and hygienic delivery but also in providing much needed antenatal care.

**Table 7**  
**Distribution of all live births according to place of birth and institution of delivery**

Region of origin	Place of birth	% of births occurring in		
		home	hospital	other (not stated)
Uttar Pradesh	Uttar Pradesh	98.4	1.5	0.2
	Delhi	88.8	10.7	0.2
Tamil Nadu	Tamil Nadu	70.5	29.4	0.1
	Delhi	60.3	39.6	0.1
Total Number of Births:		Uttar Pradesh	2376	
		Tamil Nadu	1921	

Finally, coming to modern curative medical care, our data indicate that although there are interesting intra-household differentials in use (especially by sex, see Basu, 1989b and age, see Basu, 1990), once access to services is controlled, cultural background is not a serious bar to their overall utilization. It is true that the Registrar General of India's (1981a) survey of infant and child mortality found that in rural Uttar Pradesh only about 34 per cent of infant deaths and 59 per cent of deaths of children aged 1-4 years had been attended by a trained medical practitioner, while in rural Tamil Nadu the corresponding figures were 61 per cent and 64 per cent. But our data indicate that this regional difference is better explained by the fact that by the end of 1984, Uttar Pradesh had one doctor per 13,000 population and one hospital bed per 43,000 rural population, the figures for Tamil Nadu being 8,000 and 12,000 respectively (Department of Health and Family Welfare, 1985).

Our urban data on health care use in child illness lead to two more important findings. The first and more striking one is the overwhelming faith in modern or Western type medicine, whatever the regional origin, nature of illness or age of the sufferer. This faith seems to remain unshaken however backward the household in other respects, with the lower castes or the uneducated often being even more eager to seek what they perceive as qualified allopathic help than their socio-economic superiors. Nor is this finding unique to the present study. Several writers (for example, Banerjee, 1973; Lieban, 1977; Caldwell *et al.*, 1983) have described the strong faith in modern medicine which often exists simultaneously with traditional or supernatural beliefs about disease causation.

Our second significant finding is the uniform tendency to consider the private practitioner to be superior to the government one, even though the services of the latter are free. The reasons for this are complex, but certainly include the fact that the private practitioner, like his clients, believes in quick results and in the efficacy of the injection: so

much so that he often does not even have a separate consultation fee; instead he charges a flat rate of something like five rupees for a consultation and an injection even before he has diagnosed the illness.

How then do we rank our four study groups? Taking a combination of the accessibility and use measures, a fair ranking in descending order of children's medical care would probably be: urban poor from Tamil Nadu; urban poor from Uttar Pradesh; rural Tamil Nadu; rural Uttar Pradesh.

#### 4. Discussion

To put the findings from the last two sections into some kind of perspective, we look first at the regional or cultural differentials that emerged there. On the whole, it appears that, compared to the children from Tamil Nadu, the children from Uttar Pradesh receive more and better food, better child care and similar curative medical care. And yet, while they do have better nutritional levels, they show higher levels of morbidity and especially mortality. This suggests that the more important influences on morbidity and mortality are the physical environment and the preventive (including antenatal and neonatal) medical care available and used. At the urban-rural level of comparison, the urban poor seem to have better food and better medical care than do rural households; and yet rural morbidity and mortality are lower than urban. This suggests that the important determinants are the environment and child care.

The common factor in both cases seems to be the physical environment of the household. A cleaner and kinder physical environment, whether supplied by nature, the State or household behaviour itself, seems to have a more beneficial impact on child health and mortality than increased food or more doctors. This is not to say that food and medicine are unimportant; obviously they are important, food especially for better nutritional status and general strength, and medical care especially for lower mortality. But our rural-urban findings indicate that medical services cannot overcome the impact of an adverse environment beyond a point, whereas, in spite of poor medical services, a favourable environment can be associated with markedly lower mortality and morbidity under present macro conditions. The role of medical care is better illustrated by disaggregating mortality by age and sex. For example, perinatal and neonatal mortality differentials between our two cultural groups and between the rural and urban poor are in the same direction as differentials in preventive health care, in particular those related to the conditions of birth. Secondly, once the environment is controlled, as it is *within* a household, the use of curative medicine can be shown to be an important determinant of intra-household differentials in mortality, for instance by sex (Basu, 1989).

What then are we saying? That while the physical environment is always important, the role of other factors varies under different circumstances. For example, in rural areas, the poor availability of health service is a major constraint on morbidity and mortality improvements. And in North India, both urban and rural, it is the limited use of health services, especially those for antenatal and delivery care, that plays an important part.

Having stressed the environment so much, it is also necessary to stress the role of custom in shaping this environment. To give a simple example, adolescent girls from North India have a strong tendency not to use the public toilets provided in our slum, but it would be misleading to put this down to just poor civic sense and hygiene. The embarrassment and insecurity felt in sending young girls to the public toilets provided by the local authorities are very strong, especially for the more conservative North Indian households



where women lead much more secluded lives. Indeed, this awkwardness and fear needs to be a major consideration in the design of public facilities for such slum populations. Similar remarks apply to the (especially North) Indian hesitation in letting young girls be examined by male doctors. That is, much health-related behaviour is an outcome of custom and non-health-related beliefs and attitudes rather than a conscious attempt to influence health. Hence the powerful role of education in first bringing the concept of motivated health behaviour into the consciousness of people and then influencing this behaviour to move in the desired direction.

Finally, a word about motivations. While I have been at pains here to show that where child health and mortality are concerned rural areas may have an edge over urban slums, either the priorities of our slum population do not include child health very high up on the list or the rural-urban differences are not large enough to be perceptible to them. The majority of households in both study groups were clear in their minds that the move to the city had been good for them and that they were likely to settle down permanently in their slum homes (Basu *et al.*, 1987).

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## Chapter 31

# Differential care of children of previous unions within Mende households in Sierra Leone

Caroline Bledsoe

### Introduction: The social roots of resource distribution

One way to analyse health and mortality transitions is to find factors that explain the differences between nations of high and low mortality. But mortality levels are not distributed equally throughout national populations. We expect to find differences between regions or between urban and rural areas, or between elites and slum dwellers. But differentiation does not stop there: resources do not always trickle down equitably within communities or even within households. While poor economic conditions or high fertility place limits on the food, money, clothes, and medical care that children can receive from household resources (e.g., Scheper-Hughes, 1985, 1987), stratification and differentiation among children within the same household can create selective allocations and produce different mortality and morbidity risks among the household's children (see Bledsoe and Hirschman, 1989).

One of the most illuminating recent discussions of resource distribution is the work of Sen (1981). He argues that most starvation deaths occur not from external factors such as food shortages, drought, rising food prices, or economic depression, but from internal legal and social forces that produce inequitable food entitlements. Such insights have been applied to widely differing contexts: Tilly (1983), for instance, examines the impact of macro-level capitalist developments on access to food by European wage earners in the 18th and 19th centuries; and Hill (1987) found that many urbanites in the Sahel scarcely felt any effects of the recent droughts. More importantly for present purposes Richards (1932) long ago pointed out that food and resource distribution mark and define social relationships.

An important social trend in Africa that almost certainly affects resource distribution is the apparent rise in short-term conjugal relationships. While we are only beginning to comprehend the magnitude and shape of these patterns, we know almost nothing about what happens to the children of these unions as their parents enter subsequent ones. This paper draws on data collected during a research project on child fosterage, pulling together evidence on selective resource allocations and their potential health and mortality implications for children of former conjugal unions. I conclude that both women and men feel pressure to allocate resources disproportionately to children by the unions they most value at present; thus adults treat children in ways that reflect, or shape, their own relationships to adults whom the children represent: an observation that bears relevance elsewhere.

Data for the paper come from studies among the Mende of Sierra Leone. During 1981-1982, I worked in a rural chiefdom in the Eastern Province of Sierra Leone, and carried out a follow-up study in December of 1985 in a large town in the Southern Province. Qualitative

data consist of open-ended interviews, observations, and case studies. Quantitative data consist of two surveys: a survey of 179 households (in 1982) and a survey of 860 women (in 1985).

### **Wider societal patterns of economic and political inequality**

It would be wrong to attribute intra-household inequities to 'bad' African care-takers or to the evils of polygyny or divorce. Micro-level stratification is shaped and intensified by larger societal inequalities and economic stresses. This point deserves explication.

Scholars generally agree that in previous eras, the benefits of rearing children in Africa were considerably greater than the costs. Even today, most children, particularly girls, work hard in the household until they leave home for marriage or employment, after which many send remittances and backstop parental emergencies. But nowadays, to educate children up to a level that allows them to gain white collar employment exerts enormous drains on scarce household income, especially for rural families. Students incur direct costs ranging from perhaps \$25 per year for children attending government primary schools to hundreds of dollars for more prestigious boarding schools and secondary education. Paying school expenses also poses an increasing gamble. Because of the shrinking market for wage employment, the chances of any one child becoming highly successful have grown smaller. Even for those few children who do become successful, their own urban commitments make it difficult for elders to translate their investments into long-term payoffs.

Analogous pressures apply to medical expenses. Whereas the costs for everyday herbal and clinic remedies are small for most children, serious illnesses requiring substantial periods of hospitalization and expensive remedies drastically reduce scarce household resources. In effect, the costs of producing a successful child may detract substantially from the chances of the other siblings succeeding.

Changes in economic expenditures for children also operate against a broader cultural context of patron-clientism (see also Richards, 1986). In Sierra Leone, jobs, scholarships, substantial medical support, and other valued resources are dispensed through personal ties to powerful brokers who can intervene with national institutions. At the same time, court cases that strip people of land, property, and dependants can be trumped up against those with weakly developed patronage support. With precipitous recent declines in the national economy, people have even greater need for patrons well connected to the urban and government bureaucracies to bypass cumbersome bureaucratic channels during shortages, and to provide them with crucial ties to the international world: for travel, jobs, and access to hard foreign currency.

These patron-client links, in the light of growing cash costs for children, influence how adults assess children and their prospects. A son who acquires a good job and political connections may use his position against them, appropriating prime family lands for his own cash crops and to turn his relatives into unpaid labourers. As his ties expand, he tends to spend his profits on goods and services that give him respect vis-à-vis the external world instead of distributing his wealth to the rest of the family. This makes a boy with political and educational promise at once the object of feverish investment by some family members and the target of discrimination by those who seek to 'block his progress'.

### **Differentiation within African households**

African households are not homogeneous units; indeed, they represent individuals with often-competing interests. Some of the most salient foci for competition are children. We



usually prefer to separate children and their welfare from the messy business of politics, in the sense of negotiated social life, and to relegate them instead to the safe moral amity of 'kinship'. Yet the Mende place children at the heart of on-going adult power struggles.

Just as people point to status differences between husbands and wives and between respected elders and young men, they also point to distinctions among children: by age, sex, sibling order, 'cleverness', and so on. Children's statuses and their relationship to various adults in the household are crucial determinants of the household allocations they will receive. Certainly this applies to fostered children. A child from a family of low status is more likely to be treated as a servant and is fed poorer quality food than a child from a family of equal or better status. Robert Launay (personal communication) points out significant parallels with marriage: how a man treats a particular wife depends largely on the status of her family.

One of the most important distinctions among children is that stemming from polygynous unions. Since African women generally maintain their own children, with occasional help from husbands (Boserup, 1970; Guyer, 1981; Frank and McNicoll, 1987), the most important divisions among children in the same household usually stem from their mothers' characteristics: their seniority in the house, education level, families' social and political connections, business success, or special designations such as the favourite wife or the 'official' wife of an important urban man who must appear in 'civilized' contexts with only one wife.

Just as children derive status from their mothers, a woman needs children to justify making demands on her husband's wealth or his estate after he dies (Bledsoe, n.d.). Infertility or subfertility, an anguishing problem in general for African women, is particularly severe in the context of polygyny. A subfertile wife must watch whatever productive efforts she exerts for the household going to benefit her co-wives' children. Women jealously observe the children their co-wives bear and the number that survive. Fearing to short-change any of his wives or children, a polygynous man is a reluctant advocate of birth control.

Multiple unions – whether extant or defunct – lay the groundwork for bitter rivalries. Divisions among the children of different co-wives cast the seeds of competition far into the future. Small favouritisms, whether real or perceived, are taken as harbingers of disproportionate advantages for some children at the expense of others. Not surprisingly, worries about favouritism infuse polygynous life. A husband who buys a shirt for one wife's child is expected to buy an article of clothing of equal value for the other's child. If he shares some of his leftover food with one wife's children, the other wives are watching. If he gives one wife money to take her desperately sick child to the clinic, the others broodingly recall the times they were told to 'try for themselves' with money from their own trading endeavours.

### Changes in African polygyny

Just as there are clear links between fertility and societal transition to better health, there are crucial links in the African case between health and transitions in marriage, for changes in conjugal structure affect resource distribution within households. Only 25 years ago, Evans-Pritchard (1965) argued that in 'simple' African societies, there was no such thing as an unmarried adult woman and preferences for polygyny predominated. Although considerable deviation from these patterns arose in different times and places, recent

history has witnessed truly dramatic changes. Under pressure from missionaries as well as policy makers some African countries have decreed polygyny illegal, at least on paper, and in most urban areas, the outward form of marriage has shifted to monogamy, especially among educated people. Even among such populations, however, the logic of polygyny thrives in new forms: 'serial monogamy' (Comaroff and Roberts, 1977), 'outside wives' (Baker and Bird, 1959; Mann, 1985; Karanja, 1987), 'informal unions', 'polyandrous motherhood' (Guyer, 1988), and, in francophone countries, '*la femme de coeur*' or '*le deuxième bureau*' (Lacombe, 1983; Clignet, 1987).

Yet in the wake of economic decline, these same shifts toward legal monogamy erode the security that many women derive from marriage. Educated men can define their unions with educated women as legitimate monogamy, while marginalizing lower-status women and children as 'country' or 'outside' marriages (Brandon and Bledsoe, 1988). While these trends make conjugal relations more tenuous, they also induce women to strike up 'outside' or short-term relationships to tide themselves and their children over. As a Mende woman asserted: 'People are anxious to have this material wealth, and they can't get this money unless they go to their boyfriends'; see Schoepf (n.d.), for a sensitive treatment of this issue. I do not mean to underplay the affective components of conjugal relations. Nonetheless, the economic bases of unions were the ones to which women themselves drew my attention: problems that threaten to intensify as national conditions worsen.

Guyer (1988) broadens such observations, pointing out that by contrast to *lineal* fertility theories, which stress the long-term returns to be gained from children in their maturity, increasing economic instability is pressuring women to establish immediate *lateral* links with different men and their resource networks: a strategy Guyer calls 'polyandrous motherhood'. Lateral strategies can produce dividends in a shorter time frame, with greater breadth and flexibility of networks; for a case of some interesting parallels and contrasts in a completely different setting, see Browner and Lewin's (1982) description of Colombian women emigrants in San Francisco.

At the heart of these lateral strategies are children. A woman can press her demands on a man, whether or not they call their relationship a marriage, with far greater leverage if she has a child by him. Children give solidity to old relationships without foreclosing new ones; marriage, in fact, becomes almost incidental to a woman's reproductive career. 'The child is the key; without it there is no basis to claim anything beyond the moment of the relationship' (Guyer, 1988:6).

Although such strategies may appear to have all payoffs and no costs, the risks of failure are in fact quite high. In the context of rising rates of union rupture and reconfiguration, pregnancy, like marriage, is becoming an ambiguous process that continually tests the relationship between the partners. A young woman may try to have a child to bolster a wavering relationship she wishes to continue. She can also try to rejuvenate her claims if a particular man later shows interest in the child she bore him. But on the whole, if a relationship appears to be ending, the children resulting from it can quickly become economic burdens as well as social hindrances for initiating new unions.

### Kinds of children from previous unions

Whereas rivals for paternal resources include women and children from present, previous, and even future unions, this paper focuses largely on children from previous unions. We can identify three principal kinds of such children.



The first is an *orphan*, a child whose mother or father has died. The Mende term for 'orphan', however, usually refers to the child of a dead mother, since a mother's conscientious, day-to-day care is hard to replace. Orphans appear to suffer considerably from neglect; other women in the household have their hands full with their own children's needs and sicknesses, and orphans necessarily make demands on household wealth. Chinua Achebe's novel *Arrow of God* (1969:2-3) describes a new moon as being 'as thin as an orphan fed grudgingly by a cruel foster-mother'. And the following Mende proverbs attest to the strength of cultural perceptions that orphans are perpetually hungry: 'An orphan stands, watching for food'; 'An orphan eats too much [more than care-takers want to provide]'.

For these reasons, many fathers prefer to send the child of a dead woman to be raised by relatives. But because relatively few children suffer the loss of a mother at an early age, and because of the growing importance of multi-partner conjugal strategies, the rest of this paper concerns children who are the products of conjugal dissolution or illegitimacy.

The second category of children of previous unions is the *child of a divorce* who comes with one parent into a new union. Such a child, called a 'met-in-the-hand' child, again usually refers to the mother. Although the Mende insist that children legally belong to the husband's lineage, most young children (and many older ones) live with their mothers or their mothers' kin after divorce.

The third general category is what I will call, following local English translations, an *illegitimate child*, one resulting from a premarital or extramarital union (see Harrell-Bond, 1975:124-156). Because illegitimacy is increasingly singled out for local debate, we need to look more closely at this category.

People express considerable ambiguity about exactly who is, and who is not, an illegitimate child. Some ambiguities underlie the marriage event itself, for there are many ways of defining a union (see, for instance, Comaroff and Roberts, 1977; Burnham, 1987; Brandon and Bledsoe, 1988; Nelson, 1988; van de Walle and Meekers, 1988; Locoh, 1988). Further, African marriage is best described less as a definitive event than a process, making it unclear when a couple was actually married. In many cases, the union is defined tautologically: if the relationship is intact, it is a marriage; if it broke down, it was not. Whether the child was born well before most of the significant events defining the union seems to be less important than whether the union has lasted.

A final source of ambiguity concerning legitimacy is whether a woman's current man claims paternity for her child. Some scholars argue that in sub-Saharan Africa, since all children belong in theory to either their mother's or father's lineage, there is no such thing as an illegitimate child. Nonetheless, distinctions are increasingly drawn between children who came in the 'right' or the 'wrong' way. The category of illegitimate child has become highly charged, and calling someone illegitimate, a horrendous insult, is grounds for a lawsuit. The following colourful terms for illegitimate children reflect this stigma; by combining a noun or phrase with the word 'child', they refer to the adultery act. Most need little explanation: night-time child; window [or back-door] child; disgraceful-business child; thieving-here, thieving-there child (refers to the lover's theft of the husband's sexual rights); go-and-wait-for-me-there child; come-and-close-the-door-quickly child; hurry-up-I'm-going child (refers to the woman worrying about discovery); corner-corner child (refers to secret, illicit acts); tricky child (refers to the mother's behaviour).

On the one hand, many men are willing to recognize their children, regardless of the legal status of the union. But what 'recognition' entails in terms of actual support over the life cycle of the child or of recognition by the man's family is another matter, especially since this implies relationships to a wider kinship network reaching far beyond the man himself. In more elite urban circles, family pressures to maintain the appearance of formal monogamy induce many men to draw hard lines between their 'inside' and 'outside' children. But since men can have more than one wife, and since a pregnancy by an 'outside' woman can be construed as one step toward a legitimate union, people seldom speak of a man's child as illegitimate (see also Caldwell *et al.*, 1989), whereas they do so much more readily with a woman's child.

A man who allows his wife's illegitimate child to remain in his house usually draws clear symbolic and economic distinctions between this child and his own. But men take such actions less because they resent the children than to punish and embarrass their mothers, as a man explained:

I'll say [to the child], 'Look, keep far ... The way your mother brought you here was not satisfactory, so you have to be quiet. Otherwise, I'll send you to your grandmother in no time'. So really, it's not the child I am vexed at: it is the woman. This is why I say all this in her presence: so she can hear.

Besides the kind of illegitimacy resulting from an extramarital affair there is the child born to an unmarried woman. Prominent among these nowadays is the child of a teenage girl who becomes pregnant while attending school, despite her efforts to avoid this through abortion or birth control (Bledsoe, 1989; *in press*, a, b). Molnos (1968:84) reported over 20 years ago that in Kenya the most frequent response to the attitudinal question, 'Parents who have a daughter going to school are fearing ...?' was 'pregnancy'. Most schoolgirls who bear children do not return to school since they become targets for teasing and harassment. But many girls leave their babies with their mothers or sisters and try to resume schooling in another town or strike up new unions, unfettered by the embarrassing evidence of the past.

Despite the apparently clear distinctions among these two principal kinds of children of previous unions – children of divorce and illegitimate children – the two tend to conflate in practice. This is because in neither case is the child's mother still with the father, thereby earning his goodwill for her children through her good behaviour toward him. Further, just as lateral strategies allow women to try to gain access to many resource networks, the obverse also holds: people resent someone else's attempt to exert claims on their own household's meagre resources through these children of divorce or non-marital unions. Finally, if a step-child is successful in education and employment, the outsiders who escaped the economic burden of these expenses may 'poison his mind' against those who raised him, provoking him to seize control of paternal properties and money. These suspicions almost inevitably result in resentment toward the child, but primarily toward the adults, both within and outside the household, with whom the child is associated.

### The treatment of children of previous unions

There is enormous variation between the two poles of good and bad care of children from previous unions. Before we examine some of the factors that appear to determine where children fall on the continuum, let us look at some survey results that suggest that such children have quite different health and welfare prospects from those from intact unions.



1. *Pregnancy outcome.* One indicator of how children of prior unions are likely to fare is whether defunct unions are less likely than intact ones to result in live births. For each pregnancy, Table 1 shows that women who said they were married to the man who engendered the pregnancy when it ended had more live births (91.5 per cent) and fewer 'spoiled pregnancies' (3.9 per cent), a category including both miscarriages and abortions, than women who were not married to the men who engendered their pregnancies (86.4 per cent and 10.7 per cent, respectively). See Caldwell and Caldwell (1988) for parallel observations. Although the differences are small, they are probably understated because women are reluctant to report illegitimate pregnancies and abortions (see also Bleek, 1987). These differences might reflect more fragile pregnancies for young women, who are less likely than older ones to be married. But young Fula and Mandingo women in the sample, who typically marry very early, experienced fewer pregnancy wastages than young unmarried Mende women.

**Table 1**  
**Whether woman married to father of the pregnancy by pregnancy outcome – 1985 survey (percentages: first three pregnancies only)**

Married	Live birth	Stillbirth	'Spoiled' Preg.	N
Yes	91.5	4.6	3.9	1,335
No	86.4	2.9	10.7	103

Higher pregnancy wastage rates can result from taking active measures such as abortion or, possibly, infanticide. With the advent of modern medical techniques, higher wastage rates among non-marital pregnancies may occur also through medical steps *not* taken: antenatal clinic visits and medications not paid for, blood transfusions not given, and so on. A local physician related a dramatic case in point. A woman having labour problems was brought into a hospital at 1:30 in the morning. After a rapid examination, the doctor told her husband he needed to perform an emergency Caesarean. He asked the husband to sign a statement permitting the immediate operation, and to pay 60 *leones* (US\$51) to cover the expenses. But the husband was oddly reluctant to sign; he wavered, then refused, then wavered some more. Finally, he was dispatched to borrow some money from relatives in town. He came back some time later with only ten *leones*, and still refused to sign for the operation. Finally, at 6 a.m. he signed, just as the doctor was suctioning out the by-now dead baby. When the man heard the outcome, he shrugged and commented that the baby was not his anyway.

2. *Breastfeeding duration.* Once a child survives past the neonatal phase, what kind of maternal treatment does it receive? One measure of this is the number of months it was breastfed. Table 2 shows that whether a union is recognized as a marriage has a pronounced effect on this. Those women who said they were married to the child's own father when the child was born breastfed these children for almost a year on average (.95 years). In contrast, women who said they were not married to the child's own father breastfed these children for only nine months (.75 years).

Table 2  
Whether woman married to the father of the pregnancy by average years breastfed – 1985 survey (first three births only)

Married	Years breastfed	N
Yes	.95	1,116
No	.72	81

3. *Time to next pregnancy.* Whether a woman is married to the child's father also appears to affect the length of time to her next pregnancy, an interval that can decisively influence the health of the previous child. The first column in Table 3 shows that the interval from birth till the next pregnancy is 1.64 years for women who are married to the men whom we might call the genitors of their pregnancies, and 2.20 years for unmarried women. However, the next two columns show that this applies only to the first interval. For the second and third intervals, women who are not married to the genitors have much shorter intervals than do women whose relationships are recognized as marriage (1.2 versus 1.6 years). Women married to the genitors reported virtually no differences in any of their first three pregnancy intervals. The long first interval for unmarried women appears to reflect the situations of young women such as school girls who thereafter take extra precautions to avoid pregnancy.

Table 3  
Whether woman married to the father of the pregnancy by average years to next pregnancy – 1985 survey (first three intervals only; N = the total number of intervals)

Married	All 3 intervals	Years to next pregnancy		N
		1st interval	2nd and 3rd intervals	
Yes	1.64	1.67	1.60	1,093
No	2.20	2.77	1.20	55

4. *Paternal support.* Whereas it is not entirely clear how paternal support may affect a child's welfare, Table 4 shows that whether the mother and father recognize their union as a marriage is crucial to whether the father will support the child. Taking the first three surviving children, 74.1 per cent of those whose parents are currently married to each other receive paternal support, compared to only 50.7 per cent of those whose parents are not married. Of course, the two variables are not wholly independent: one sign that the man recognizes a union as a marriage is that he supports the children resulting from it.



Table 4

Whether mother married to child's father by whether father supporting child – 1985 survey (first three surviving children; percentages)

Married	Father supporting child		N
	No	Yes	
Yes	25.9	74.1	939
No	49.3	50.7	71

5. *Fosterage*. One of the most important findings of the study is that children of prior unions are much more likely to be fostered, which I define as being away from their mothers, than those whose parents' marriages are intact. The principal reasons are fears of indifferent care, overwork, and even ill-will from step-parents. A woman may also foster out her children because her new partner does not want a graphic reminder of an old union around. Whatever the immediate cause, or whatever the polite reasons that adults report for sending children away, Table 5a shows that whether the parents' union is intact strongly affects fosterage: among all children from 2 to 16 years, 71.1 per cent of those whose parents were married to each other were with their mothers, compared to 22.7 per cent of children with unmarried parents.

Table 5a

Whether parents' union is intact by child's fosterage status – 1982 survey (percentages)

Married	Child's residence		N
	Here	Away	
Yes	71.1	28.9	235
No	22.7	77.3	66

These findings support those of Page (n.d.), who showed that whether a woman had divorced was a better predictor of fostering out children than any other tested (see also Fraenkel, 1964:215-216; Findley and Diallo, 1988). Age strongly affects these results: small children more often remain with mothers regardless of marital status, while older children usually live elsewhere. However, despite the patrilineal ideal, many older children live with other relatives, on mother's as well as father's side, or with unrelated people.

Table 5b shows that parents' marital status also affects which children are fostered out most frequently. Among unmarried parents, boys are more likely than girls to be fostered out, either because it is considered appropriate for them to be with their fathers or because they pose greater competitive threats in their mothers' new households. Among parents who were married to each other, 44.2 per cent of their out-fostered children were boys and 55.8 per cent were girls. Among currently unmarried parents, 61.0 per cent of their out-fosters were boys and 39.0 per cent were girls.

**Table 5b**  
**Marital status of out-foster's parents, by sex of child –1982 survey (percentages)**

Married	Sex of child		N
	Male	Female	
Yes	44.2	55.8	52
No	61.0	39.0	41

Where and with whom do fostered children live, and how do their parents' marital statuses affect these outcomes? Out-fostered children of defunct unions are less likely than those from extant unions to go to prestigious urban households, and more likely to remain in rural areas with negligible chances for advancement. Because many young women want to continue their schooling or look for new men unburdened by children from prior unions, grandmothers (usually maternal) often end up with illegitimate children.

The 1982 survey showed (Table 5c) that a large proportion (47.8 per cent) of in- fostered children from zero to five years were living with real or classificatory grandmothers (Bledsoe and Isiugo-Abanihe, n.d.). By contrast, only a small proportion (21.3 per cent) of older in-fosters from 6 to 17 were with grandmothers, because 'grannies' tend to have fewer means or skills to educate them. People stated explicitly that to leave a child with the grandmother past the age of six or seven is a clear sign of illegitimacy, for it indicates a lack of paternal interest in the child's advancement. In only two instances out of 19 had any children over five of still-married parents remained with grannies. These children, however, were still relatively young (seven and eight, respectively), both had come from small villages to the larger survey town, and both were to leave their grandmothers soon to enter school.

**Table 5c**  
**In-fosters' relationship with care-takers by in-fosters' ages – 1982 survey (percentages)**

Care-taker	Children's ages		N
	0-5	6-17	
Grandmother	47.8	21.3	30
Other	52.2	78.7	82

Concerning the treatment of fostered children, most people argue that because 'grannies' love and pamper their small charges, they are the best care-takers for young children. Though many grandmothers live upcountry with untreated water supplies, diminishing supplies of animal protein and staple foods, and few clinics or immunization programs, they generally treat grandchildren as well as their means allow.

Besides those with grandmothers, a number of other fosters are treated well, particularly those sent to a barren or subfecund woman who wants a child of a close relative to raise as her own. On the whole, however, fosters do receive arduous work assignments,



and suspicious care-takers may dismiss their complaints of illness as tricks to avoid work. Many receive little animal protein and food of poor quality, such as the crusty, burnt rice at the bottom of the cooking pot. Since they are said to 'earn' their food through good behaviour (Bledsoe, in press, a), they are punished frequently by 'starvation': food deprivation. The following description reflects the cultural perception that a small fostered child is likely to become a *nehe lopoi*, literally, 'watch-pot child': that is, a hungry child who goes around begging silently for food.

He was not given sufficient food and he was not well looked after ... So this boy had to go to the neighbours, around, and beg food. These were people living in the same compound. This was a *nehe-lopoi*. So all the time, these people grumbled, 'At any time when we are dishing rice, this child likes to come and stand'. The child did not ... say anything. He would just come and stand like that.

Thus, although fosters in general are under-represented in hospital admissions, young ones who are admitted present more malnutrition than children with mothers. Older fosters suffer less malnutrition because they become more adept at foraging for wild animal and vegetable foods, hawking, stealing, overcharging market customers, and appealing to sympathetic outsiders for food or money (Bledsoe *et al.*, 1988; Bledsoe, in press, a).

As for illegitimate fosters, abundant evidence about their welfare comes from Sierra Leoneans. An official at the Ministry of Social Welfare alleged intentional neglect; particularly in the heavily-Christian south, such children suffer intense stigma, and their mothers seldom visit. These factors, compounded by a frequent lack of financial paternal support, suggest that children with grandmothers may suffer higher health and mortality risks than others.

Having stressed the possible health drawbacks of fosterage, however, I also stress that many fosters from non-marital unions fare better than they would with their own mothers: particularly young single mothers with unstable unions (Bledsoe and Gage, 1987). Table 5d (from the 1982 survey) compares the 'living conditions' (economic status) of foster children's natal homes with their present fosterage conditions; in- and out-fosters are combined. According to the adults who answered this question, 47.1 per cent of fosters with parents who were married to each other moved to households with better living conditions, while 16.5 per cent went to households with poorer living conditions. Fosters from unmarried but still-living parents, however, were not far behind: 43.3 per cent had improved their living conditions, while 13.5 per cent went to worse conditions. Once they move, though, fosters in general – and perhaps those from previous unions in particular – appear to be treated worse than other children in the household.

Table 5d  
Whether parents' union is intact by living conditions in child's foster household – 1982 survey (in- and out-fosters, combined; percentages)

Married	Living conditions			N
	Better	Worse	Same	
Yes	47.1	16.5	36.8	85
No	43.3	13.3	43.3	60

6. *Nutritional status.* Two other possible indicators of children's welfare as a correlate of their parents' marital situations include nutritional status and survival chances. Because my own quantitative data on these questions are thin, I rely on suggestive findings from other studies. Concerning nutritional status, one of the most salient background factors mentioned, usually in passing, as a background factor in child malnutrition is a lack of paternal economic support, through desertion, divorce, or illegitimacy (see, for example, Williams, 1933; Sachs, 1953; Pretorius *et al.*, 1956; Scragg and Rubidge, 1960; Moodie, 1961 for South Africa; Thomas, 1981 for Ciskei; Burgess *et al.*, 1972 for Malawi; Levine and Levine, 1981 for Kenya).

7. *Child's survival chances.* Adegbola (1987) has produced the most substantial demographic evidence to date on the relationship of children's survival chances with respect to parents' marital statuses. He analysed World Fertility Survey materials for nine African countries, and found that in five – southern Nigeria, Ivory Coast, Cameroon, Benin, and Ghana – illegitimate children suffer higher mortality rates in general: a pattern that increases, rather than decreases with age.

As we saw previously, however, one of the most common patterns now occurring is that many young women engage in conjugal testing, moving from union to union until one works out. Here I stress that pregnancy, like marriage, is an ambiguous process that continually tests the relationship between the partners and their families. At any point, shifting relations among these parties can alter the social definition of a child. A young woman may try, for example, to get pregnant to bolster a wavering relationship with a man. If he loses interest, or makes moves toward other women, then the perceived failure of this union can have unfortunate consequences for the resultant child.

A young urban woman in Sierra Leone exemplified such a case. She had borne one child by a man who claimed social and financial responsibility for it. But a second child arrived less than a year later, resulting from an affair with a man who denied paternity. The girl's family was angry because the short birth interval had clear moral implications: she had failed to observe a decent period of postpartum sexual taboo. They were also annoyed that the needs of this second child would endanger the life of the first, whose paternity was secure. Under such pressure, the mother badly neglected the second child. She frequently failed to feed him and left him alone for long periods in dirty diapers. Not surprisingly, his health deteriorated, and he suffered from bouts of untreated illness. Finally, the mother decided to 'throw him away'. She put him in a plastic bag and left him in a dump, but was caught in the act. The baby was saved, and she was arrested and later released. But the baby began to get sick again and finally died.

### Factors influencing the care of children of previous unions

To identify some of the factors that influence access to household resources for children from previous unions, I outline a case study of Vani (all personal names in this paper are fictitious), a boy of whom I have kept track for several years. The case is unusual in that the father, rather than the mother, took the child from a brief union. But in other respects it highlights problems to many children of prior unions.

Vani, generally a happy, gregarious 13-year-old when I first met him, had a sharp intelligence which he was trying to use to advance through school. His main problem was his father's new wife, who made it clear that she resented spending household reserves on this child of a previous woman, instead of her own young son Ansu, Vani's half-brother.



Though his step-mother saw his school expenses as a thankless sacrifice for her and her household, Vani saw them as resources that were properly due to him as his father's son and as investments in Ansu's future as well. He envisaged himself helping Ansu to continue school once he himself graduated from college and acquired a job.

Vani's stepmother feared that Vani would eventually turn his primary loyalties to his own mother, despite what she saw as her own substantial sacrifices for his schooling. Once Vani expressed a desire to visit his own mother, whom he had not seen for five years. His stepmother triumphantly claimed this statement as proof that he would eventually turn his primary loyalties to his own mother, despite what she saw as her own substantial sacrifices for him. In retribution, she 'starved' him for a day and grew increasingly resentful of him. Some days he got nothing to eat and fell asleep in school from hunger.

In one telling event, Vani complained that he could not grind the family's cassava leaf because he had hurt his wrist during sports at school. His stepmother accused him of bluffing, and threatened him with no food until he completed his work. This stalemate lasted for four days, during which time Vani managed to eat a bit of food secretly at a friend's house. Finally his father called a crisis 'house palaver'. During the session, no one mentioned Vani's hand. Instead, the debate focused on social and economic tensions. Vani accused his stepmother: 'If it had been your own child, you wouldn't have done this'. But she retorted: 'All I have been doing for you, you have not appreciated it. So I know that in the future you will not [recognize] me'. Vani's irate father accused his son of ingratitude, a devastating charge in the Mende moral vocabulary, depicting his son as a cocky braggart whose educational achievements had made him too good to perform demeaning household chores for a woman with no education.

As this suggests, Vani knew that a deep source of his stepmother's resentment was his school successes. Although her own son Ansu did well in school, Vani did better. And because he was older than Ansu, he would likely advance more quickly – a situation older siblings sometimes exploit to seize the family properties and money. Vani's galling school honours appeared, therefore, to intensify her jealousy and determination to halt his academic progress.

Compounded with these worries, Vani's growing financial needs for secondary schooling made his stepmother put increasing pressure on his father to avoid these expenses. When the man seemed likely to capitulate and pay the ever-mounting school expenses, she threatened to leave. On one occasion, when the father's payments for Vani's schooling left little for the immediate household expenses, she fumed: 'You have gone and spent all your money on your son [Vani]. And now we are still staying here and suffering, suffering!'

One year she pressured Vani's father to refuse to pay his school fees, using the excuse that the family was going to move to another town before the school year was over. This, however, meant that Vani would not pass to the next class. From a diary he kept, I excerpt the following:

School was over. I came home with my hunger and illness [a boil]. I was unfortunate that there was no food prepared for me, so I went to the town to [walk] around. When I came I eat [a meagre meal] and I took bathe and pack my books and went for evening studying. When I went, was unable to study because my boil and stomach was aching. Deliberately I just have to keep myself on the floor for

satisfaction [i.e., lying on the stomach to suppress hunger pangs]. I was unable to study. [Nor did he sleep that night.]

[The next morning]: When I went to school I was unable to study for my stomach was empty. I try to force myself to study but I was reading while nothing remains in my head. So I decided to go home and have food. I came home and have food, but it was not enough, therefore I drank a lot of water to get my stomach fill ... At that night I study for I was worry whether I will be allowed to sit to the examination for my father hasn't pay my fees; for that worry I immediately decided not to study ... So I went to sleep for that night.

[The next day, the national promotional exam results were announced in school, but the name of the student, whom everyone knew to be Vani, who was placed first in the class was not announced, because he had not paid his fees. Vani's description of his day reveals great depression.]

Forced to turn elsewhere for support, Vani moved in with his mother's brother, who fed him and took on some of his school expenses. But this uncle had started his own young family, and his wife watched apprehensively as money was diverted to her husband's nephew. She began to scrimp on Vani's food, and demanded that he turn off his studying lantern early at night to save on kerosene, the lifeblood of students. Sensing his wife's growing hostility, his uncle had to cut down Vani's support, forcing him to fend increasingly for himself.

Although Vani finally managed to complete his requirements to enter college, he was unable to muster the fees. He had no one to lobby on his behalf with his father: usually the crucial role of a mother in a polygynous household. He wrote despairingly to me:

I am from a polygamous family wherein my mother had separated long since from my father and I have no body to advocate for me to my father to put serious attention in my education ... [Even] if I go to university who will help to finance my education? Of course my father will say [he will do it], but will not do it because of my step-mother's influence ... My [own] mother who I was thinking could help me when I attain university level is seriously sick that only God knows whether she will survive, so my plan at home has ruin.

To a large extent, of course, Vani's step-mother appeared to be using both Vani and her own son Ansu to test her husband's loyalty to her. She expected her husband to shower attention and resources on Ansu and ignore Vani. Despite Vani's stated affection for his brother, he expressed his frustration in a statement that foreshadows future strains between them:

There is one thing bringing the situation to a worse position. My father has grown *too* much love for the lad [Ansu] again. *Too* much love. *More* love ... Because the lady is there, working, taking care of him [the father] ... he has to pay more attention to the son of the lady. [His emphasis.]



## Socio-economic factors determining treatment of children of previous unions

Vani's case highlights several factors of a more social nature that place children near one or the other end of the continuum from warm acceptance to hostile maltreatment by step-parents.

1. *Which parent the child stays with.* Whether children stay with the father or the mother can make a large difference for children of previous unions. Children with fathers are likely to suffer more deprivation and work harder because a stepmother oversees them and feeds them. The man may be unaware of the kind of child care his wife is rendering, since he is away from the house much of the time. More likely, though, he is aware of discrimination, but remains silent to avoid antagonizing her. Although Vani clearly faced such hardships, they are particularly important for small children, who rely on their female care-takers for time-consuming nurture. Because of this, most people argue that despite the patrilineal ideology, a young child is better off with the mother and her new man.

2. *Economic strains.* Vani's case also highlights economics as a fundamental determinant of how children of previous unions are treated. Even step-parents who currently enjoy amicable relations with their stepchildren fear that their investments in such children will be wasted. A stepmother's ill will is exacerbated when the husband fails to cover the expenses of his child by a previous union, forcing his current wife to absorb these costs, along with those of her own children. She also resents, as Vani's stepmother did, expenditures for the child of a woman no longer contributing to the household and who, moreover, is benefiting through her child from the household's scanty wealth. So the stepmother pressures her husband for more economic benefits for her own children.

The impact of economic strains also affects grandparents, who believe, probably correctly, that if they do feed and clothe such an illegitimate grandchild adequately, then the father, if his identity is known, will not help them. Hoping the father will come to pay for any needed medical treatment, they may delay treatment until the child's condition is urgent. Such delays can prove serious for young children, who are vulnerable to maladies needing speedy attention. Yet I also heard a surprising number of cases of explicit neglect: grandparents giving indifferent care to children with no paternal support because they view such a child less as their own grandchild than as the father's unmet responsibility. One person explained:

Since the boyfriend will be tipping [his mother] small-small, she will take care [of the child]. But if she doesn't get something from the young man, she wouldn't want to know what the child is doing. Since the father is not interested, the granny also will not be interested. Even the woman's mother will not be interested. If the granny is not fully supported, how do you expect her to bring up that child?

Because of the growing frequency of union ruptures, many children are caught in multiple economic binds: both parents as well as grandmothers may have acquired new spouses who pose new financial conflicts. The Ministry of Social Welfare official I talked to cited a case in which a grandmother with two small children of her own had to take in two of her daughter's illegitimate children. But the grandmother's own husband, who was not her daughter's father, resented the burden these children posed, and pressured her to give them back.

3. *The presence of step-parents' own children.* Vani's case highlights yet another determinant of how children of former unions are treated: whether the step-parent has children of his or her own in the household. Many childless step-parents seek to bolster their uncertain futures in the home by treating their spouses' children as their own (see also Fraenkel, 1964:122). But even genial relationships can dissolve into competition once a new step-parent begins to bear children, as a man related:

My wife did take ... the boy by my other [divorced] wife, but at that time, she didn't have a child. Everything was alright then, but when she began to have her own children, she began to show some favouritism.

A father who readily pays the school fees for his children by a departed wife, but makes the present wives pay for their own children, also drives a deep wedge between the sets of siblings. These gulfs typically widen over time, as the stepchild grows older and begins to pose ever larger economic and political threats, as a man explained:

This is a bad mistake. You cannot tell which of these children is going to be somebody tomorrow. And when that happens, then the child who becomes somebody will be ready to victimize these from the other woman who is not there.

### **The treatment of children as a symbol of adult relationships**

The three factors outlined above – whom children stay with, financial strains, and the presence of step-parents' own children – clearly influence how step-parents treat their spouses' children by previous unions. But such explanations tend to restrict questions about the quality of care-taking to the relationship between the child and the care-taker. In fact, one major issue is almost always overlooked when asking about care-taking quality: relationships among adults (see also Bateson, 1972).<sup>1</sup> A Mende proverb expresses these tendencies to extend one's sentiments for certain individuals to their dependants: 'If you like the monkey, you must like its tail'.

Using children as symbols of adult relationships is especially relevant for children with female step-parents, who, because of their legal subordination, find it safest to express their resentments toward their husbands indirectly. But husbands like Vani's father who do not wish to escalate their quarrels into conjugal rupture also tread lightly by diverting hostility toward children.

Such principles apply to any children that spouses bring into the household, not simply those from previous conjugal unions. A man named Joseph explained that when he was a foster child in his uncle's household, he knew exactly how his uncle and the uncle's wife were getting along by how the woman treated him. When the spouses were on good terms, the woman would invite Joseph to the parlour (an unusual privilege for a fostered child), where she served him some coffee and a bounteous meal with his uncle. When he

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<sup>1</sup> Provocative parallels occur elsewhere in the world. In the US, for example, the highest rates of child abuse and neglect appear to be in father-only homes or homes with one step-parent and one natural parent. Many studies that seek to explain these patterns, however, argue that step-parents abuse their stepchildren because they have little to gain in terms of inclusive genetic fitness through children with whom they share no genes (e.g., Wilson *et al.*, 1980; Lightcap *et al.*, 1982). Although such explanations could be debated, I simply point out that they focus on the child-step-parent relationship, without recognizing the probable hostilities stemming from the reminders of the old union or tensions arising in the new one.



returned from an errand, she would casually pocket the change he returned without counting it. He would have few chores that day, and if he were tired, the woman would suggest that he wait till morning to bring water. But when the uncle and his wife were at odds, Joseph's treatment was different. The woman would acidly explain his puny rice allocation as 'what your uncle provided', implying that her husband had given her little money that day. She would painstakingly count the change from his errands and report any embezzlement immediately to her husband. And she demanded that he work into the night, if needed, to finish his chores.

What, then, are a few of the pivotal adult-adult relationships that affect how children of previous unions are treated? To try to simplify some of these complexities, I divide the discussion into how step-parents and natural parents treat children, as a function of the adults' wider relations with other adults.

### 1. *Step-parents' treatment of children*

a. *Relations between step-parents and resident parents.* Perhaps the most relevant social component that bears on a child's treatment is the couple itself. Most of the data suggest that tensions between natural and step-parents exacerbate step-parents' tendencies to maltreat stepchildren. Some of these tensions undoubtedly stem from a man's suspicion that the woman he recently took into the house is using the child she brought with her to maintain a secret connection to her previous partner.

But there are many cases as well in which a step-parent's affection toward the spouse, and thus financial generosity, extends to the spouse's children. An older boy described his own relationship with his stepfather in these terms:

Presently my mother's husband loves my mother so much. So the love extends to us. He is willing to accept us, he is glad over us. Because of the love. Last year he got sports [shoes] for me. I was so glad, because I hadn't shoes at that time. That was my complaint. He bought that for me. I was so happy. So happy!

The relationship between the spouses – more than the step-parent's relationship with the children themselves – determines even how a man will treat his wife's illegitimate child. Testimonies such as this one from a remarkably frank man bear witness:

If the father loves his wife very dearly ... he will *never* expose [the illegitimacy]. If the woman is arrogant, he will say, 'I am going to expose you', and he will do it. He will say ... 'There is a reason why you are being proud. Because you are loving [having an affair with] so-and-so person' ... But if it is a quiet woman, you will keep things very cool and dark. You won't expose it at all ... There are some women who love, who have more than 20 boyfriends. But as long as your wife is obedient, she does not disturb you at home, you wouldn't mind this. If, with this 'up and down' [love affairs] if she happens to [bear] any child, you just have to claim that child to be your son or daughter. You don't have to expose it at all.

b. *Relations between step-parents and absent parents.* For children staying with their father, whether their stepmother and absent mother were on good terms is critical. If not, as is often the case – indeed, disputes between the women may have led to their mother's departure – then the remaining woman will almost certainly neglect them at best and maltreat them at worst. Such children are considered at high risk of poisoning or witchcraft, especially if the current wife perceives any signs of paternal favouritism toward them.

Jealousy and resentment are to some degree almost inevitable. In Vani's case, he and his half-brother Ansu had become symbols through which the father and the new stepmother tested their loyalty to each other. Though a man may assure his present wife that his past marital ties are broken, she faces the daily reminder of a woman who may have been her bitter enemy. The more her resentment grows, the more she interprets any paternal attention toward the child as a sign of her fall from favour, and the more pressure the father feels to remain silent about how she treats his child.

## 2 *Parents' treatment of their own children*

Although the centrality of adult relationships in determining child treatment is understandable in the case of step-parents, even more dramatic are instances of neglect or maltreatment from grandparents or even parents themselves, who are responding to pressure from other adults.

a. *Effects of relations with grandparents on parents' treatment of their children.* Adult relationships are so important in determining the treatment of children that they appear to affect a relationship normally considered inviolate: the grandparent-child bond. In one striking case, a father drove his secondary school daughter out of the house after she bore an illegitimate child, and threatened to disown her – unless the child died. I quote the grandfather himself:

... my daughter ... had been attending school and was 'pregged' ... So she told me she had put to bed [borne] a baby boy. I said, 'Look, Mary, let me tell you one thing. I am not going to touch that child until he dies. Otherwise, you and I are not going to be one'. I drew away ... She was gone about six months, and the child died. When she came back, I accepted her because I was not seeing the [boyfriend] again ... I never wanted to *know* how he died, since I said I was not going to touch that baby ... She came to meet me and apologize. I later forgave her ... But later, she came with her own choice [a real husband]. I said, 'Well, now I am happy. But I wouldn't want you to be going up and down without a legal husband. My name is too big. They would say, "Look at [X's] daughter. She is a street girl". This would be a big shame to me'. This is why I drove her away.

b. *Effects of relations between parents on parental treatment of children.* The most important finding is that both women and men feel pressure to allocate resources disproportionately to children by the unions they most value at present. Final evidence is found in the fact that parents may express discontent with their spouses (present or past) through their own children whom they bore with those spouses.

*Fathers.* Because children are associated in the polygynous context with their mothers, it makes logical sense that fathers might discriminate against their own children because of the mother's behaviour. One man, for instance, was so angry at the woman he was divorcing that he drove her three sons, his only surviving children, out of the house after her, and deliberately focused his affections and money instead on the daughters of his new wife by her former husband. Most cases, however, involve considerable subtlety. For example, a man who supports his children by a previous union runs the risk that they will eventually return to their mother, in effect using his investments to benefit a woman who will 'poison their minds' against him.

*Mothers.* But compelling evidence that adult relationships in new unions influence the care of children consists of discrimination by mothers – in theory, a child's ultimate refuge –



against their own children. What we must recall here is women's growing pressures to use their children as links to men's resources. Women with new partners face strong economic and social pressures to shore up these new unions by displaying no interest in their old ones. Such demonstrations may include withholding resources from their own children. Recognizing these pressures, a friend swore that if he should divorce, he would send his children to his sister because she would take better care of them than their own mother:

The mother would love a new child with her new husband more than those from a previous husband ... So this is why sometimes when a man and woman divorce, the man has to take the children away. When the woman gets the child with her new husband, she would want to satisfy the husband by taking good care of his child. He would in fact be vexed to see her taking care of the previous husband's children so well, and there will then be misunderstanding between the new couple, and the woman wouldn't want that. So it is not that the woman loves her older children less, but that she knows she must take better care of the new ones to make sure that no palaver arises between her and the new husband.

Analogous pressures apply even to mothers who are still with their children's fathers. If their efforts to claim resources from their current unions appear to be unavailing, women may express their anger, including implied threats to leave, through their own children by these specific men. An angry woman, worried about the likelihood of secret outside female incursions on her limited household means, as evidenced by the man's flagging support for her and his children, may go so far as to deny her maternal connection by casting herself as the guardian and her children as 'fostered' children whom she is obliged to 'mind' for an ungrateful man. Indeed, she may give more privileges and food to her fostered children than her own. A woman elaborated the reason:

I would always realize that I was taking care of [my own] child for the husband to take away from me. But the relatives' children would be in the same family circle.

A man confirmed that women express through their own children their anger at men who threaten to undermine the economic viability of the union through taking on outside women. He related that when he gave his wife no money for the day or 'slept out' with a girlfriend, she would beat 'his children', 'starve' them for small infractions, and so on. By contrast, she would treat royally her sister's son, whom she was fostering. One time, after the man 'slept out', he returned to find his wife and her nephew eating, with her own children looking on in hungry silence. Referring indirectly to the money he spent on his lover, she said spitefully: 'Let [your children] eat the food you have provided'.

Of course, most cases of women neglecting their own children involve only brief periods of symbolic neglect, with the exception, perhaps, of illegitimate ones whose presence exposes their mothers to shame. Still, exceptions occur. Hospital workers report that mothers who have new boyfriends or who are experiencing marital discord often take indifferent care of their children in the hospital. They may be gone for long periods, leaving the children with no one to feed and tend them. And startlingly frank comments from mothers also surface. One young woman in my 1982 survey voiced defiant relief at the death of her child by a husband who had provided her with little money to run the household or buy food. She commented to my surveyor, who had been instructed to probe for details on significant cases: 'Lest my child suffer, let him die, because the father wasn't taking care of him'.

## Conclusions

A voluminous literature draws attention to the following factors in precipitating child abuse or neglect: cultural views of children as non-persons (e.g., de Mause, 1974; Shorter, 1975), demographic-economic constraints on the household (e.g., Stannard, 1977; Stone, 1977; Scrimshaw, 1978; Scheper-Hughes, 1987), and so on. The latter theories posit that under high mortality-high fertility regimes, parents may invest selectively in children, for example, by sex, sibling order, temperament, or physical characteristics.

I suggest that in contemporary Sierra Leone, maldistribution within households does not reflect simply members' attempts to weed out children either by virtue of their own culturally perceived weaknesses or because of a numerically unmanageable pool. While overall scarcities make it difficult to care for all children well, selective distribution stems also from worries about competition that the wider system of patronage and political instability imposes even at the household level among a shifting array of conjugal partners. By broadening the analysis beyond questions of child-caretaker relations, we find that adults employ highly specific uses of resource allocations to test and shape their own relationships, and to maximize their access to sources of wealth.

In any event, the well-being of children of previous unions should be high on the research agenda in an area of the world where economic conditions pressure women to bear children by different men to try to broaden their claims on multiple resource networks. The same pressures that make lateral fertility strategies more viable may also increase the health and mortality risks for young children of former or non-marital unions, especially those resulting from unions that portend little support.

Recognizing the importance of adult relationships outside the child-care-taker dyad raises questions about customary approaches to studying child mortality. Because certain children may be excluded from food and medical treatment, a child's welfare is not necessarily linked to the resources of the household as a whole. This means that neither the household characteristics (income, land holdings, etc.) nor the characteristics of the parents or care-takers (education, income, etc.) may accurately describe a child's mortality or morbidity risks. Surveys that focus on women seldom distinguish between the children by current husbands and those by previous ones.

Since many children of former unions are sent away, we not only need to be sensitive to different categories of children within households; we also need to take account of the children we do not see: the products of former unions who have been sent out because their presence undermines the stability of the current union. Although regional or family networks offer support for most sick individuals, to what extent can children be assured of good health when they are removed from their natal domestic contexts?

Finally, it is unrealistic to expect health programs to probe into the micro-dynamics of households as some of the examples here have done. Nonetheless, in-depth cases and strategies can demonstrate that intra-household discrimination does occur, and that analyses that stop at the household level may overlook some quite striking imbalances in resource distribution.

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## Chapter 32

# The best of both worlds: attempting to explain the persisting low mortality of Greek migrants to Australia

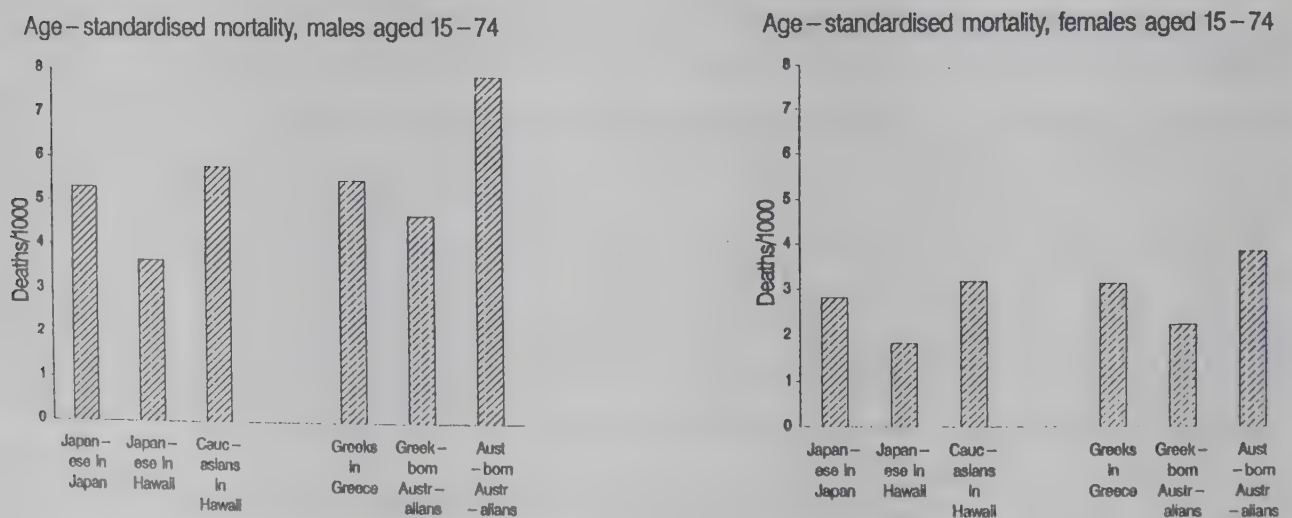
John W. Powles

### Introduction

For some decades now the main concern of epidemiologists in industrialized countries has been to find the causes of life-shortening chronic diseases associated with the industrial way of life. One strategy has been to study groups migrating from environments where the risk of these diseases is low (such as Japan and the Mediterranean area) to higher risk environments such as Hawaii, California and Australia. The researchers studying Japanese migrants have been particularly prolific (Kagan *et al.*, 1974; Worth *et al.*, 1975; Kolonel *et al.*, 1981; Reed *et al.*, 1982; Reed, McGee and Yano, 1983; Joffres *et al.*, 1985; Nomura *et al.*, 1985; Kato and Kagan, 1988; Yano *et al.*, 1988). The rationale of these studies leaves the impression (not contradicted in the text of most published papers) that 'things get worse' in the new environment. And so they do for the specific diseases of interest: typically ischaemic heart disease. It therefore comes as something of a surprise to learn that Hawaiians of Asian ethnic origin have what are perhaps the lowest well documented mortality levels in the world, lower even than those in Japan (Figure 1). Similarly, in

Figure 1

Age-standardized mortality at age 15 to 74; Japanese in Japan compared to persons of Japanese ethnicity in Hawaii and Caucasian Hawaiians and Greeks in Greece compared to Greek-born Australians and Australian-born Australians, around 1981.



Note: Data for Japan and Greece are for 1981, for Hawaii for 1980 and for Australia for 1980-82. Rates have been standardized using the World Standard Population weights (Doll & Cook, 1967). Sources WHO, 1983; Gardner, 1984; Young, 1986.



Australia, although Greek and Italian immigrants show convergence towards the higher host population rates for ischaemic heart disease and cancers of such sites as breast and colon, their overall mortality levels remain well below those of the host population and also remain lower than those of their countries of origin (Figure 1).

- Some questions that might be stimulated by these migrant mortality data are:
1. Is the low mortality of these migrant groups to be explained by the selective migration of healthy persons or is it due mainly to culturally determined environmental influences?
  2. What is the overall change in the composition of mortality? (Given that some things get worse, do other things get better?)
  3. Is the increase in the causes of death with the potential to increase all-cause mortality, most notably ischaemic heart disease, more modest than might be expected given the length of exposure to the new environment?
  4. Do the migrant groups of interest have cultural characteristics that are important underlying causes of their sustained protection from life-shortening chronic disease?

Selective migration?

I am not aware of any attempt to address this question in relation to the Japanese migrants.

**Table 1**  
**Comparison of non-migrant and migrant siblings for characteristics likely to have been determined at the time of migration; Levkadian Migrant Health Study, 1983-84.**

	Brothers		Sisters	
	Non-Migrants	Migrants	Non-Migrants	Migrants
N <sup>a</sup>	160	216	128	144
Age <sup>b</sup>	49.55 (0.91)	49.39 (0.56)	51.54 (0.85)	45.45 (0.76)
Birth order: % eldest or 2nd eldest <sup>c</sup>	49	35	57	26
Height <sup>b</sup>	166.19 (0.51)	167.15 (0.41)	153.34 (0.51)	155.23 (0.48)
Literacy <sup>d</sup> (%)	90	90	41	67

Notes: <sup>a</sup>In the 207 Index Sibships in which at least one non-migrant and one migrant sibling were seen.  
<sup>b</sup>Mean (SEM)  
<sup>c</sup>Of those alive at survey.  
<sup>d</sup>Percentage signing consent form with a 'non-laboured' signature.

Migration from Greece has been overwhelmingly from the rural areas where mortality is low (Keys *et al.*, 1980). In the Levkadian Migrant Health Study (see below), we have been able to compare migrating and non-migrating siblings, in families in which there has been migration to Australia, on attributes likely to have been determined before the time of migration, for example, birth order, height, literacy. In this sample of families from a Greek island, migrating sisters showed evidence of being relatively advantaged: they were taller than the non-migrating sisters and much less likely to be illiterate (Table 1). Although is not

clear either that such selection processes have been general throughout the migrating Greek population, or that these measured advantages are associated with lower susceptibility to fatal chronic disease, when mortality in Greek-born Australians is compared to that in Greece, the ratio for women is more favourable than that for men: .72 compared to .85 for the data displayed in Figure 1. In the case of men, however, most of the mortality advantage of Greek-born Australians relative to the Australian-born can be accounted for by lower mortality in the population of origin.

**Mortality transitions in low mortality populations: the example of Greek migrants to Australia**

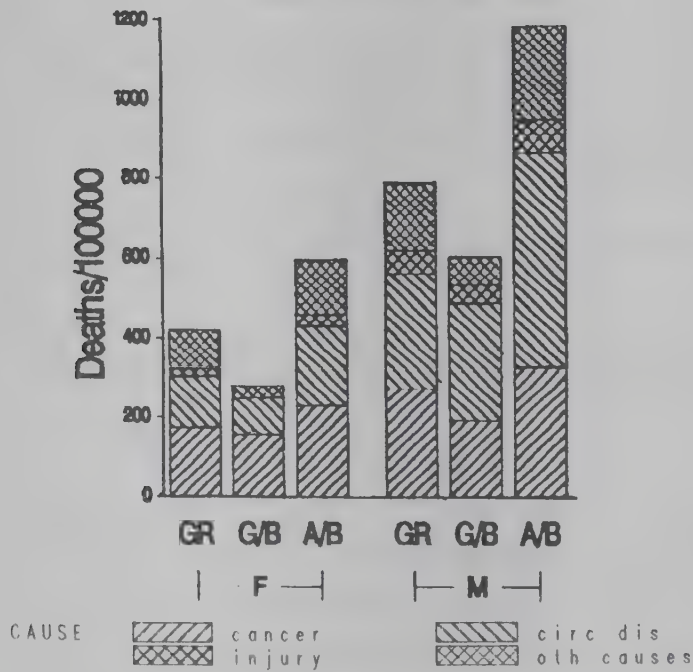
**Considering migrants of all lengths of stay**

Figure 2 presents data on the level and composition of mortality in middle age in Greece, in Greek-born Australians and in native-born Australians. Deaths attributed to circulatory diseases, cancer and injury account for at least 80 per cent of the total in all groups and the residual category is smallest both relatively and absolutely among Greek-born Australians. This suggests that the allocation of deaths to the other causal groups is not biased downward among the Greek-born Australians.

The rate of deaths attributed to injury is lower in Greeks and in Greek-born Australians than in native-born Australians.

**Figure 2**

**Death certification rates for cancer, circulatory diseases, injury and all other causes, for ages 45 to 64, Greece and Greek-born and Australian-born Australians, around 1981.**



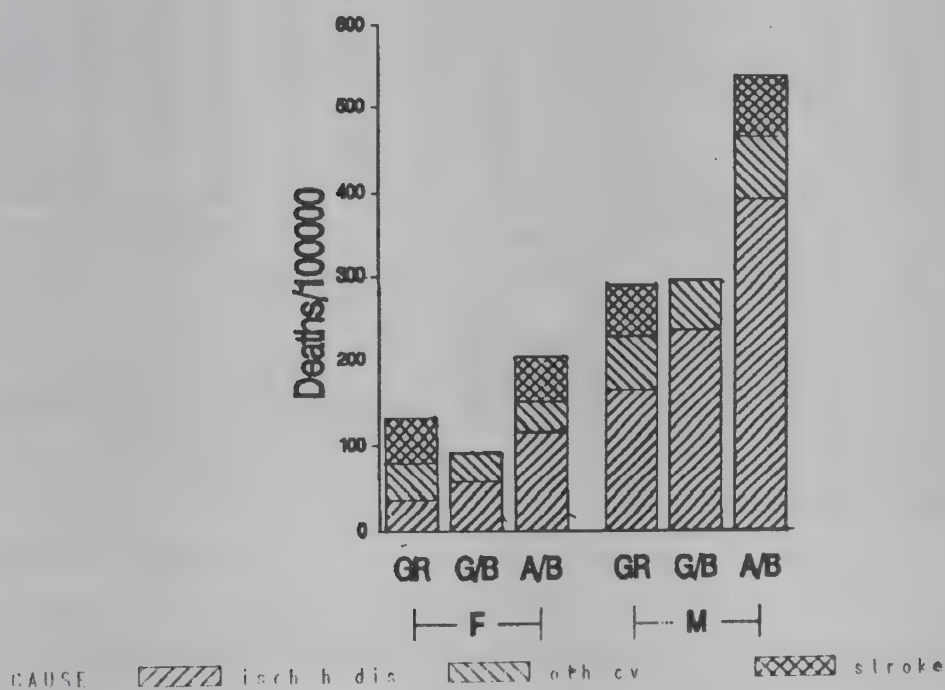
Note: Data for Greece are for 1981 and for Australia for 1980-1982. Rates have been age-standardized. Sources for Greece and Australia as in Figure 1. Note that the equivalence of cause-of-death certification practices between Greece and Australia is uncertain. The validity of certified cause-of-death has been found to be substantially better below age 65 and for broad cause-of-death categories than for narrower ones (Heasman and Lipworth, 1966).



Fewest deaths are attributed to cancer in Greek-born Australians, followed by Greeks in Greece and then native-born Australians. Given that the frequency of cancers at some of the commoner sites, notably colon and breast, have been shown to increase with increasing length of stay among Greek immigrants in Australia (McMichael and Giles, 1988), this points to offsetting declines at other sites; stomach and cervix are likely candidates.

Figure 3

Death certification rates for ischaemic heart disease, stroke and all other circulatory diseases, for ages 45 to 64, Greece and Greek-born and Australian-born Australians, around 1981.

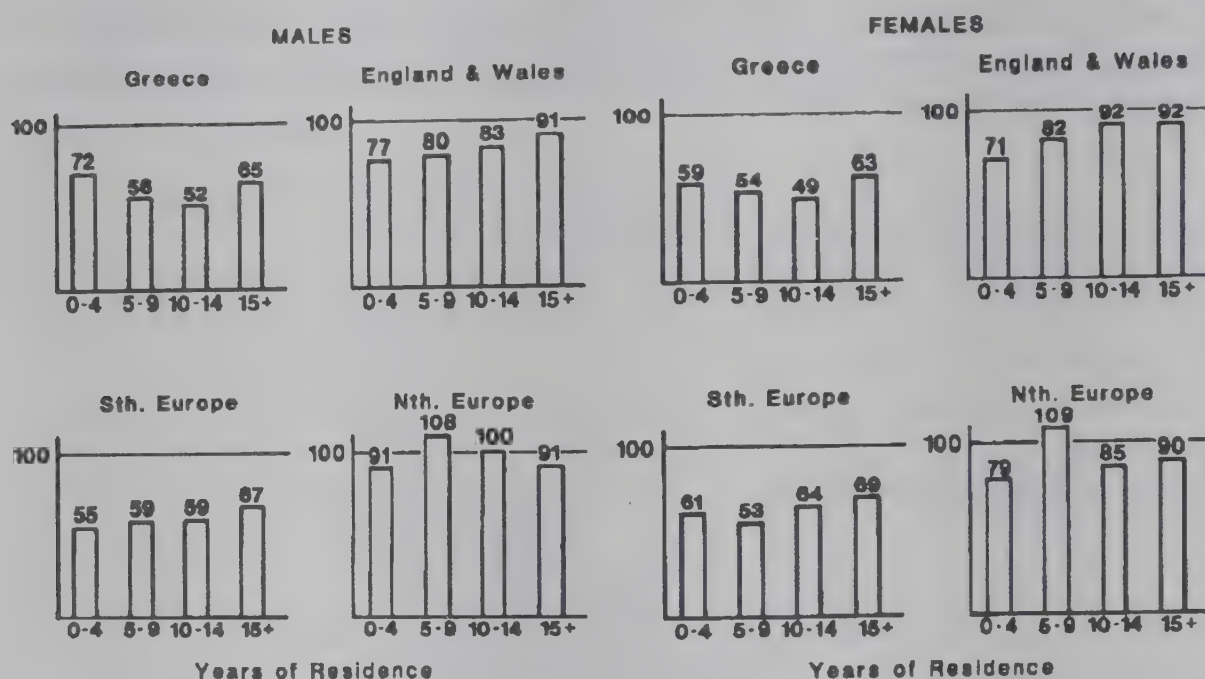


Note: as for Figure 1.

The rate of deaths attributed to circulatory diseases is lower in Greek-born women in Australia than in Greeks in Greece; in the case of males, the levels in these two groups are comparable. These data suggest that if the rate of death from circulatory diseases is increasing in persons of Greek ethnicity (see below), it is doing so no more rapidly among those in Australia than among those in Greece. However the breakdown of circulatory diseases given in Figure 3 also suggests the presence of off-setting trends among Greek-born Australians, with increases in ischaemic heart disease being offset by low levels of fatal stroke. Although there were insufficient deaths to calculate directly age-standardized rates, Young gives standardized mortality ratios (compared to the Australian-born) of .64 for males and .52 for females for the age range 15 - 74. The ratio of the rates for deaths attributed to stroke in the more inclusive group of Southern-European-born compared to native-born Australians is .45 and .53 for the age-groups 45 - 54 and 55 - 64 for males and .42 and .61 for females (Young, 1986).

### Considering mortality by length of stay

**Figure 4**  
Standardized mortality ratios for Australians of various birthplace groups and ages 15 to 74 for mortality from all causes by length of stay in years, 1980-82.



Source: Young, 1986.

The trend in all cause mortality for different lengths of stay for various birthplace groups is shown in Figure 4. The Greek-born show relatively limited convergence towards the rates for the total Australian population.

The data presented in Figure 5 confirm the picture of 'off-setting' mortality trends within the broad category of cancer.

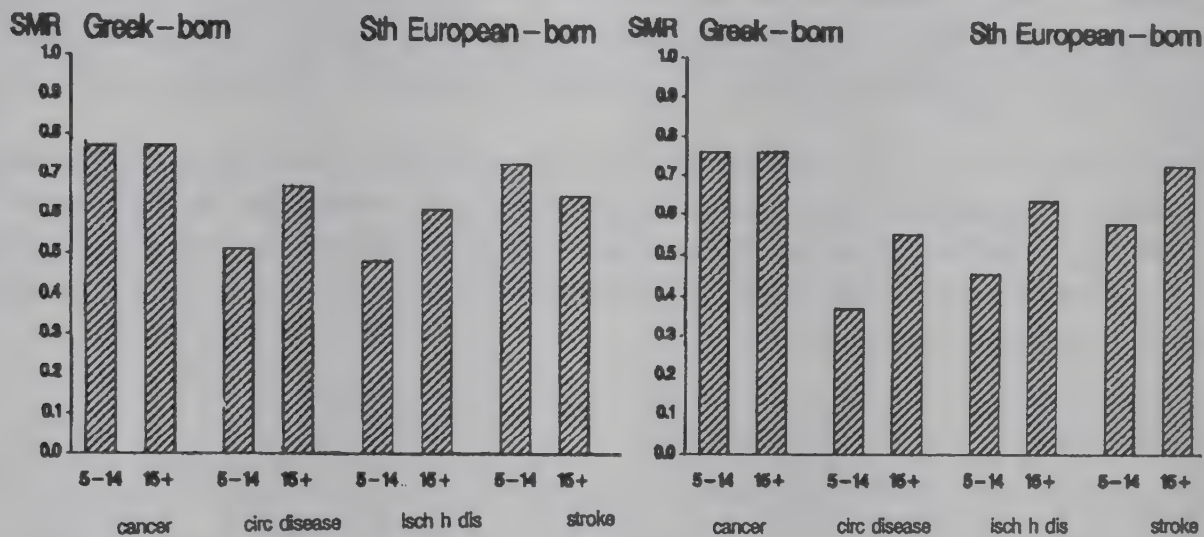
For circulatory diseases it seems clear that the incidence of fatal ischaemic heart disease increases with increasing residence in Australia; but perhaps no more rapidly than it has been increasing in Greece. The picture for stroke is less clear, with relative mortality declining with increasing period of residence in the case of males and increasing in the case of females. The apparently low frequency of stroke in Greek-born Australians would have led one to expect a decline with increasing residence in both sexes. The anomaly may point to markedly different death certification practices in the two countries or to the selective migration of women at particularly low risk of stroke.

To summarize: Premature mortality is even lower among Greek-born Australians than it is in Greece. Especially in the case of women, some of this advantage may arise from selective migration. An examination of the composition of mortality suggests offsetting trends within the categories of circulatory diseases and cancer, which between them account for around three quarters of all deaths in the age-range 45 to 64.

Before considering the possible explanations for these mortality changes, data are presented characterizing the change in way of life from Greece to Australia.



**Figure 5**  
Standardized mortality ratios for Greek-born Australians for cancer and circulatory disease and for Southern-European-born Australians for ischaemic heart disease and stroke, comparing durations of residence 5 to 14 years and 15 or more years, 1980-1982.



Note: Of Greek-born Australians in 1981, 26 per cent of males and 27 per cent of females had been resident 5 to 14 years and 69 per cent of males and 68 per cent of females for 15 or more years; for Southern European-born Australians, the corresponding percentages were 22, 23, 73 and 71 (Young, 1986).

**The ‘way of life transition’ in migrants from the Greek island of Levkada to Melbourne, Australia**

**Outline of the Levkadian Migrant Health Study**

Over 30 per cent of Melbourne’s population of three million are either foreign-born or the children of foreign-born parents and this city has been the commonest destination for Greek migrants to Australia. There are approximately 65,000 Greek-born persons in Melbourne<sup>1</sup>.

The Levkadian Migrant Health Study combines features of both migrant and family study designs. Study subjects are members (or the spouses or offspring of members) of 238 sibships. There are 207 ‘bilateral’ sibships in which at least one non-migrant sibling was seen in the rural villages of the island of Levkada in summer 1983 and at least one migrant sibling in Melbourne in the following (Southern) summer. The effective study population now totals 1474 (694 siblings, 365 spouses and 423 offspring). Median duration of residence for migrants was around 20 years. Field methods, data preparation and characteristics of the study populations are described elsewhere (Powles *et al.*, 1987).

With a population of 19,706 at the 1981 census Levkada is the fourth most populous of the seven Greek islands of the Ionian Sea. The subjects for this study come from approximately 40 villages in the rural areas of the island (i.e. excluding the provincial town) constituting a base population of approximately 12,300.

<sup>1</sup> Data from 1986 census.

The island is roughly pear-shaped, about 30 km from top to bottom and 15 km wide at the middle. The economic basis of the rural areas is subsistence agriculture. Olive oil, olives for eating and wine are the main products supplemented by pulses, nuts and other garden produce. Fish are caught from coastal villages but most large fish are exported. Tourism and income from family members working outside the island provide additional cash income. A large measure of self-sufficiency still characterizes the Levkadian economy. In this study, 95 per cent of non-migrant respondents reported that they produced all the olive oil that they consumed; 86 per cent reported self-sufficiency for olives and 73 per cent for wine.

There is very little rain in summer and the rocky terrain presents limited opportunities for modernized agriculture. Impressions suggest that the island would be below the rural Greek average for affluence and modernization, thus providing an especially sharp contrast with living conditions in Melbourne. Official statistics for the province of Levkada show a decline in population since 1951.

### Socio-demographic characteristics of the study populations

The age structure of the study populations has been largely determined by the calendar period of peak migration and the tendency to migrate as young adults; 63 per cent of the non-migrants and 62 per cent of the migrants were in the range 35 to 64 years of age. The offspring produced a second mode in the age distributions at ages 15 to 24. A higher proportion of migrants was married: 97 per cent of males over 25 and 96 per cent of females, compared to 93 per cent and 89 per cent respectively of the non-migrants. Twenty eight per cent of non-migrant females over 25 were illiterate, compared, at the other extreme, to less than 1 per cent of male migrants.

### Diet

This was assessed by food-frequency questions for all subjects and by a two-day photographic and written record for 60 subjects in Greece and 70 in Melbourne. As the diet record information is not yet published this account is based on the interview information, supplemented by impressions gained in coding photographs of over 3000 food portions.

The clearest overall changes were marked reductions in olive oil consumption and marked increases in red meat and chicken consumption among the migrants (Powles *et al.*, 1988)<sup>2</sup>. These changes however occurred within a cuisine that was still recognizably Greek. One characteristic of this cuisine in both locations, and one that is not easy to quantify, is the high consumption of fruit and non-root vegetables.

### Smoking

Forty two per cent of the migrant males were smokers, compared to 47 per cent of non-migrants and the mean number of cigarettes per day was lower. For females the corresponding figures were 13 per cent and 4 per cent.

### Alcohol

About 90 per cent of Levkadian males between the ages of 25 and 65 are regular drinkers and among them the mean consumption was about 60 gm per day. In Melbourne the corresponding proportion of drinkers is about 70 per cent and the mean daily

<sup>2</sup> Data from the Australian Household Expenditure Survey shows that families headed by persons of Greek ethnicity have the highest absolute expenditures on red meat (Powles *et al.*, n.d.).



consumption only 23 gm. Similar differences occur among females at lower levels of consumption. Much of the reduction in alcohol consumption among migrants can be accounted for by the loss of self-sufficiency in wine, which, on the island, is mainly consumed with meals and essentially as a food. There was some shift to beer drinking among migrant men (Powles, Macaskill *et al.*, n.d.).

### **Physical activity-mechanization**

Physical activity has proved difficult to measure, but a good deal is implied by the observations that farming is relatively unmechanized and most villages are on hill-sides.

### **Pattern of daily life**

Regular paid employment rose from 10 per cent in non-migrant males over 25 to 49 per cent in migrant males, and from 4 to 40 per cent for comparable female groups. A majority of non-migrant males were self-employed and this fell to 29 per cent in the migrants. Of non-migrant males over 25, 73 per cent were farmers or fishermen; whereas for migrants the commonest occupations were in manufacturing (34 per cent), shopkeeping (13 per cent), and driving and transport (11 per cent). For migrant females, the commonest non-domestic occupations were manufacturing (40 per cent) and shopkeeping (11 per cent).

Responses to eight questions on subjective life satisfaction showed men to be happier in Greece and women to be less unhappy in Australia. Although we have not yet analysed our time budget data, it is clear that the quality and rhythm of daily life change markedly on migration: with, for example, the loss, on weekdays at least, of a leisurely midday meal at home and the opportunity for a siesta. Trichopoulos has shown, in Greece, that taking siestas is associated with a lower risk of heart attack (Trichopoulos *et al.*, 1987)

### **Changing 'exposures', changing 'disease'**

For the purposes of this discussion it will be assumed that the migration-associated changes observed among the Levkadians are a reliable guide to those which have occurred more generally in Greek migrants to Australia. Much of the observed pattern of change in disease outcomes is consistent with the broad pattern of findings in the disease-based epidemiological literature. With cancer, for example, there appear to be few surprises in the sites at which frequency increases or decreases.

When considering the public health implications of findings on the relationships between exposures and outcomes there are two related considerations which are often neglected. First, it is helpful to distinguish between exposures that can be avoided without inevitable substitution, such as tobacco, and those, where the alternative to an exposure of one kind is always an exposure of another kind. Where an exposure is essentially avoidable, estimates of population-attributable risk indicate the likely benefits of so doing. Secondly, where an exposure is not so much avoidable as substitutable, as in the case of dietary composition, it becomes important to consider inclusive rather than particular measures of health outcome: there is little point in knowing how to avoid one disease without knowing whether, by so doing, one is likely to increase the risk of another. In the latter case it is clearly important to take an 'exposure-based' approach: starting with different patterns of exposure and looking at their relation to inclusive measures of health outcome; as well as the traditional 'disease-based' approach: looking for the environmental causes of a particular disease.

With respect to avoidable exposures, male Greek migrants to Australia, like the ethnic Japanese of Hawaii, have continuing high rates of cigarette smoking. One may thus

envisage that the already low mortality of these two groups would be significantly lower still with the subtraction of deaths attributable to smoking. Another avoidable exposure, alcohol use, is substantially lower in Greek migrants to Australia than in either non-migrant Greeks or native-born Australians. However, as the relationship between alcohol exposure and mortality is controversial (and is probably not linear) it is not easy to estimate the benefits, if any, of this reduction.<sup>3</sup>

It is when one considers the relationship of 'substituted' exposures to overall health outcomes that the findings on the Greek migrants to Australia, as on the ethnic Japanese in Hawaii, are somewhat challenging. In relation to conventional wisdom the migrants have been changing their dietary exposures in an adverse direction, with consumption of red meat and animal products rising to high levels. And yet, in spite of that, their mortality from all causes has been converging only slowly towards the rate of the host population.

Several possibilities, not exclusive, exist. The one that is most apparent in the data is the tendency for adverse trends on one health outcome to be offset by beneficial trends on another. This is fully consistent with the observations of Brouard and Lopez (1985) that whereas the composition of mortality tends to be similar in high-mortality populations, there is a great diversity of patterns in low-mortality populations.

On this basis it may be unrealistic to expect a cumulative reduction in 'preventable' causes of death until a common core of 'inevitable' disease remains.

Further, there may be protective effects of the Greek (and Japanese) ways of life that remain poorly specified and measured. In relation to Greek diets, the adverse potential of a switch from the relatively benign olive oil to animal fats (Keys *et al.*, 1986; Mensink and Katan, 1987) may be dampened by the retention of other practices that are protective: a leading candidate here would be the continuing high intake of fruit and vegetables.<sup>4</sup>

Another possibility is that exposure-risk relationships may change outside the range of exposures (or coexistent circumstances) common in high-risk populations, limiting the generalizability of findings in those populations. In the Hawaiian Japanese, for example, low fat intake was associated with increased mortality from all causes, cancer and stroke (McGee *et al.*, 1985).

### 'Strong' cultures and 'weak' mortality?

Whatever the nature of the protective effects of Greek culture on mortality, the capacity of Greeks to retain their cultural identity in a new environment becomes an important underlying cause of their longevity. One indication of this capacity is the endogamy rate which has actually been rising among second generation-Greek women: since 1980 it has been around 64 per cent, higher than in other groups.<sup>5</sup>

<sup>3</sup> Trichopoulos *et al.* found in their case control study in Athens that wine consumption of four or more glasses a day was associated with a significant reduction in risk of heart attack, a finding consistent with many others though challenged recently by the workers in the British Heart Study (Shaper *et al.*, 1988).

<sup>4</sup> Various markers of fruit and vegetable intake have been shown to be associated with lower all-cause mortality (Kromhout *et al.*, 1982; Kahn *et al.*, 1984).

<sup>5</sup> Prof. C. Price, Dept of Demography, Australian National University, cited *Age* (Melbourne) 10/4/89, p.11.



## Conclusions

1. Unlike high-mortality populations, low-mortality populations are relatively heterogeneous in their composition of mortality. Thus there is likely to be a variety of transitions through time and across environments.
2. An over-reliance on disease-based epidemiology can lead to an overlooking of offsetting trends among different diseases.
3. Knowledge of exposure-disease relationships derived from studies of North American or northern European populations may be found to generalize poorly to populations with substantially different ways of life. This may be because disease-based findings fail to anticipate offsetting effects on other diseases; because exposure-disease relationships change outside the range of exposures common in high-risk populations, for example, for dietary fat and cardiovascular disease; because some relevant exposures are poorly identified and measured, for example, protective factors associated with high fruit and vegetable intake, neuro-humorally mediated effects (stress); or because of other things not yet understood.
4. Whether acting by tangible or intangible pathways, the cultural processes sustaining a particular way of life in low-mortality populations are important underlying causes of their health outcomes.

## Acknowledgements

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## Chapter 33

# Dietary practices during pregnancy, lactation and infancy: implications for health

P.H. Reddy

Since the beginning of the present century, the crude death rate in India has declined from more than 40 per 1,000 population to about 12. But, during the same period, the infant mortality rate has declined from about 250 per 1,000 live births only to about 120. The infant mortality rate has not declined to the same extent as has the crude death rate. There are no reliable estimates of maternal mortality in India: the national health policy of India (Government of India, 1983: 14) estimated the maternal mortality rate at 4.5 per 1,000 live births in 1976, but a study conducted in a limited geographic area (one district in the state of Andhra Pradesh) revealed a maternal mortality rate of 7.98 per 1,000 live births during 1984-1985 (Bhatia, n.d.:7). But it needs to be stressed that crude death rates, infant mortality rates and maternal mortality rates vary from one part of the country to another, as also from urban to rural areas.

The infrastructure of the health program is being strengthened and a number of training programs, both pre-service and in-service, for various health functionaries are being organized with a view to reducing the crude death rate, infant mortality rate and maternal mortality rate. But suggestions have been made that it is not the resources constraint but rather the lack of proper policies and priorities that acts as an impediment to the improvement of the people's health status. For example, Panikar (1979) asserts that one of the important reasons for a better health status of people in the state of Kerala is the emphasis laid on preventive rather than on curative services by the successive state governments. Further suggestions have been made that since population density and the proportion of rural population living in villages of different sizes vary widely from one part of the country to another, the health program, especially the population-health institutions ratio, need not be uniform throughout the country (Reddy, 1980). The provision of health services is a necessary but not a sufficient condition for improvement in the health status of people because it is also influenced by cultural, social and behavioural factors. For example, Sagan (1987) emphasizes that social class, child-rearing practices, interpersonal relationships and literacy are more important predictors of mortality rates than environment, nutrition or access to medical care. However, there are not many empirical studies identifying various cultural, social and behavioural factors that influence the health status of people.

### Objective

In the present paper, an attempt is made to identify dietary practices of pregnant women and lactating mothers and feeding practices of infants, which may have a bearing on their health status.

### Data and method

Recently, a study of determinants of infant mortality and the relationship between infant mortality and fertility was conducted in the rural and urban areas of five districts in the state

of Karnataka (Reddy and Bhattacharjee, 1987). The state of Karnataka is divided into four revenue divisions: one district each with the highest percentage of rural population was selected from the four revenue divisions; one more district with the second highest percentage of rural population was selected from the revenue division with the highest percentage of rural population. From each district, two blocks were selected, in one of which was implemented an integrated child development services (ICDS) program with health, nutritional and educational services for women and pre-school children. From each block, 10 villages were selected at random. The methodology has been described in detail elsewhere (Reddy and Bhattacharjee, 1987: 9-10).

Data for the study reported here were specially obtained from formal interviews and informal discussions with 319 women from ten villages in the district with the highest percentage of rural population. The women were selected at random from among those who had at least one child surviving for more than one year. In the case of women having more than one child surviving for more than one year, data on dietary and feeding practices were obtained for the last child.

Of the 319 women from whom data were obtained, 14 were Muslims and 305 were Hindus, of whom 65 belonged to scheduled castes, 62 to scheduled tribes and 178 to other castes.

### Earlier studies

There are not many studies on the cultural, social and behavioural factors that influence health status and much fewer on the dietary practices of pregnant women and lactating mothers, and feeding practices of infants. Mention may be made of the theory of humours with which ancient Hindu physicians, like ancient Greek physicians, were concerned. Originally, the number of humours was only three, namely, Wind (*vayu*), Bile (*pitta*) and Phlegm (*kapha*). Blood (*rakta*) was later reckoned as the fourth among the humours, although it was never considered as important as the original three in controlling the human body. The three humours, Wind, Bile and Phlegm, were regarded as the three microcosmic representatives of the three divine universal forces, Wind, Sun and Moon respectively.

The moon pours down renewal of the sap of life; the sun by its draining rays withdraws this sap from the creatures; the wind moves to and fro in various directions. Thus they support the body of the universe. In like fashion, the antagonistic activity of phlegm, bile and wind supports the microcosm (Zimmer, 1948: 134-135).

Since Bile and Phlegm are lame, they have to be carried by the Wind on their errands through the departments of the organism. Their cooperative harmony is easily upset by wrong diet, or by drugs, which disturb the proper balance of the humors (Zimmer, 1948: 65-66).

Diet has always been regarded as important in India, not only for the sick but also for the healthy (Edelstein, 1948: lviii).

Data on health status, particularly on morbidity, are hard to come by. Reviewing the health status of people in South and East Asia, Hansluwka and Ruzicka (1982: 80) observed that:



information on the health status of the population, if available at all, is too dispersed and too heterogeneous and often too fragmentary for even one country to lend itself to a systematic presentation.

Many studies have revealed an inverse relationship between maternal education and infant mortality (Caldwell, 1979; Caldwell and McDonald, 1981). However, in a group of Asian and Pacific countries, paternal education was also significant in reducing infant and child mortality (Ruzicka and Kane, 1986: 32; 1987: 76).

A micro study of demographic change in south India has revealed a belief that many disorders arise out of the wrong kind of diet and cures for them should include changes in diet (Caldwell *et al.*, 1983:191). It has also revealed that sons are being educated as breadwinners and daughters as suitable wives for this new type of breadwinner and as knowledgeable mothers for rearing children (Caldwell *et al.*, 1985: 39).

The Akawaio of South America observe a number of customs during the prenatal period, at the time of the birth of a child and during the postnatal period (Colson, 1975); these customs also include dietary practices. Of particular interest is the dieting or going hungry by the father and mother after the birth of a child (Colson, 1975: 289-291). In a study of social and cultural factors affecting health in a village in the state of Uttar Pradesh in India, Hasan (1967: 111) observed:

an expectant mother of any caste, class or religion eats the same food as do other members of the family and no special foods are given to her during the period of pregnancy. It is after the child-birth has taken place that she is given special foods, and that too, only for the first few days after birth.

In a study of dietary practices during pregnancy and ethno-physiology of pregnancy in South Kanara (also known as Dakshina Kannada) and North Kanara (also known as Uttara Kannada) districts in the state of Karnataka in India, Nichter and Nichter (1983: 238) observed mixed ideas regarding the amount of food consumed by a pregnant woman and the size of baby, although a majority of rural poor women expressed the opinion that a small baby rather than a large baby at birth will be healthy.

## Findings

Questions on dietary practices during pregnancy fall mainly into the following four categories: those ensuring quick and easy delivery; those affecting the appearance and sex of the child; those avoiding multiple births; and those avoiding abortion. Only one category of questions on dietary practices during the lactation period was asked: those improving the maternal and child health. Questions on infant feeding practices fall mainly into three categories: those on breastfeeding during the first three days after birth; those on duration of breastfeeding; and those on age of the child at which semi-solid or solid food was introduced.

### Dietary practices during pregnancy

It is rather surprising that most of the women did not consume less food during pregnancy with a view to ensuring a quick and easy delivery; to be precise, only six women (about 2 per cent) consumed less food during pregnancy and three women (1 per cent) consumed special food. A vast majority of them did not even seem to believe or know that a woman could have a small baby and thus a quick and easy delivery if she consumed less food during pregnancy. When asked what pregnant women generally do to have a quick and

easy delivery, as many as 132 (about 41 per cent) said, 'nothing, it is up to God,' and 134 (about 42 per cent) pleaded ignorance; of the remainder, 30 (about 9 per cent) said, 'take light and soft food', 21 (about 7 per cent) said 'drink *kasaya* (herbal infusion)' and two (about 1 per cent) said 'take regular hot water baths and drink hot water'.

It is well known that there is a strong son preference in India. An attempt was made in the study to find out whether the respondents avoided or preferred any food during pregnancy with a view to having a male child. All of them answered the question in the negative. The stock answer was 'it is up to God'. Similarly, all of them said that they did not avoid or prefer any food during pregnancy with a view to having a handsome child. But there is one noteworthy practice that most of the respondents followed during pregnancy with a view to avoiding deformity to the child. As many as 268 (about 84 per cent) said that during pregnancy they did not come out of the house at the time of a solar or lunar eclipse. There is a widespread belief in India that if a pregnant woman comes out of the house at the time of an eclipse, her child will suffer from deformity.

In many parts of the world, including India, multiple births are not desired primarily because rearing, including breastfeeding, more than one child of the same age is difficult. As many as 294 respondents (about 92 per cent) did not desire multiple births, while 25 (about 8 per cent) did not mind multiple births. But are there any foods which should be avoided or preferred during pregnancy to avoid multiple births? Not a single respondent said that she preferred certain foods during pregnancy with a view to avoiding multiple births. It was expected that a high proportion of the respondents would say that they avoided eating during pregnancy partly split or ridged bananas or vegetables (e.g. *brinjal* or carrot) in order to avoid twins. This belief was widespread some time ago. But only five respondents (less than 2 per cent) said that they avoided eating such things during pregnancy in order to avoid twins. The Akawaio of South America also held this belief (Colson, 1975: 286). The respondents were asked to give reasons for multiple births. As many as 195 (about 61 per cent) pleaded ignorance about the causes of multiple births; 112 (about 35 per cent) attributed them to 'God's wish' or 'fate'; and 12 (about 4 per cent) called them hereditary. Thus, not a single respondent attributed multiple births to certain foods eaten during pregnancy.

In India, abortion is disliked more than multiple births. Did the respondents know the causes of abortion? As many as 189 (about 59 per cent) did not know the causes of abortion; 42 (about 13 per cent) attributed it to 'God's wish or fate'; 28 (about 9 per cent) cited 'weakness' during pregnancy as the reason; 6 (about 2 per cent) thought that abortion resulted when a pregnant woman lifted heavy weights; 11 (about 3 per cent) attributed it to evil spirits; and 43 (about 14 per cent) gave wrong diet taken during pregnancy as the reason for abortion. When asked whether they avoided any foods during pregnancy in order to avoid abortion, 78 respondents (about 24 per cent) said that they avoided 'hot' foods, while 241 (about 76 per cent) said that they did not avoid any foods. The proportion of respondents who said that they avoided 'hot' foods during pregnancy in order to avoid abortion fell below expectation. The concept of 'hot' and 'cold' foods prevails throughout India (Hasan, 1967: 114), perhaps with some degree of variation. 'Hot' foods include pepper, garlic, chillies, *brinjal*, *jaggery* (brown sugar), eggs, meat and buffalo milk. It is obvious that these are nutritious foods which can and should be taken by all, including pregnant women, but they are avoided by some pregnant women in the erroneous belief that they produce



'heat' in the body and lead to abortion. 'Cold' foods include leafy vegetables, curd, buttermilk and citrus fruits. We will have occasion to know who avoids 'cold' foods.

### Dietary practices during lactation

The body of a nursing mother is described as *hasi meyyi* in Kannada, the local language, which may be roughly translated as 'wet or cold body'. The primary concern of a nursing mother is to keep her body warm, for which there are several methods, such as covering her head and ears with an end of her sari, and putting garlic rolled in cotton in her ears. The object of these practices is to prevent wind from entering into a nursing mother's head through her ears, and to keep her body warm. The condition of the body of a nursing mother is believed to be opposite to that of the body of a pregnant woman. While a nursing mother should prefer 'hot' foods and avoid 'cold' foods, a pregnant woman should prefer 'cold' foods and avoid 'hot' foods.

When asked about the type of foods preferred by the respondents during the lactation period, especially during the first three months of lactation, as many as 292 respondents (about 92 per cent) said that they took heat-producing foods like rice, *ragi* (finger millet), garlic, pepper, *jaggery* and chicken. Pepper and garlic figured prominently. Further, they avoided cold-producing foods like curd, buttermilk, coconut, peanut, onion and banana. Thus, 'hot' foods were preferred and 'cold' foods were avoided during the lactation period not only to keep the body of a nursing mother warm but also to improve her lactation performance. Another reason cited was that if a nursing mother eats 'hot' foods and avoids 'cold' foods, her breastmilk will be easily digested by the child. Thus, some foods are preferred and others avoided during the lactation period with a view to maintaining maternal and child health.

### Infant feeding practices

A peculiar infant feeding practice in some parts of India, including the present study area, is that children are not breastfed during the first three days after birth. This practice deprives the child of the colostrum which provides immunity to many diseases. When asked whether the respondents breastfed their children during the first three days after birth, as many as 283 (about 89 per cent) answered in the negative. Why did they not do so? As many as 103 (about 32 per cent) said that there was no milk in the breasts; perhaps they did not regard colostrum as milk. Ninety-six respondents (about 30 per cent) said that colostrum was harmful to children; 53 (about 17 per cent) said that the child's stomach should become clean before breastfeeding; and 31 (about 10 per cent) said that they simply followed the age-old custom.

With what was the child fed then? The foods included solution of castor oil and honey, sugar solution, animal milk, solution of *jaggery*, tamarind and castor oil. It may be noted that castor oil and tamarind are given to cleanse the stomach of the child through evacuation of the bowels. Eleven respondents (about 3 per cent) said that their children were not fed with anything during the first three days after birth and four (about one per cent) said that they did not know what their children were fed; perhaps the mothers or mothers-in-law fed the children with some solution.

Generally, children in rural India are breastfed till the next conception. When asked about the number of months children were breastfed, 78 respondents (about 24 per cent) answered 7-12 months, 33 (about 10 per cent) 13-18 months, 103 (about 32 per cent) 19-24 months, 63 (about 20 per cent) 31-36 months and the rest gave durations of less than 6

months or more than 37 months. It may be observed that the duration of breastfeeding in the study area is reasonably long.

The general impression is that children in rural areas are breastfed up to two or three years of age and solid foods as eaten by adults are introduced to children after breastfeeding is discontinued abruptly (Ruzicka and Hansluwka, 1982: 99). This is only partly true in the study area. It is true that there is no concept of weaning foods in rural India, as also in the study area. But solid foods as eaten by adults are introduced to children at an early age. In fact, from the time children begin to crawl, they go to adults, especially the father and mother, while eating and share the food from the same plate. Therefore, it should not be surprising that as many as 105 (about 33 per cent) introduced solid food to their children within 6 months of age, 175 (about 55 per cent) between 7 and 12 months and the rest after 12 months. Thus, supplementary food was introduced to children early.

## Discussion

The extent of some of the cultural practices was not as high as one might expect. For example, hardly 2 per cent of the respondents consumed less food and only 1 per cent consumed special foods during pregnancy with a view to having a small baby and the consequent quick and easy delivery. Similarly, the respondents did not avoid or prefer any food during pregnancy with a view to having a male child or a handsome child. The inference that might be drawn from these and similar other findings is that either the women, poor as they were, could not afford special foods and, therefore, had to consume normal food or some of the fettering traditional practices are on the way out as a result of increasing literacy rates, contacts with urban centres and modernization generally.

All the cultural, social and behavioural factors affecting health cannot and should not be brushed aside as harmful. While some may be harmful, others may be beneficial and still others may be irrelevant: the factors can be divided into functions, dysfunctions and non-functions.

*Functions* are those observed consequences which make for the adaptation or adjustment of a given system; and *dysfunctions*, those observed consequences which lessen adaptation or adjustment of the system. There is also the empirical possibility of *non-functional* consequences, which are simply irrelevant to the system under consideration (Merton, 1968: 105).

A distinction should also be made between manifest and latent functions:

*Manifest functions* are those objective consequences contributing to the adjustment or adaptation of the system which are intended and recognized by participants in the system. *Latent functions*, correlatively, being those which are neither intended nor recognized (Merton, 1968: 105).

We should try to identify not only the manifest functions but also the latent functions, which are sometimes more important. A thorough knowledge of cultural, social and behavioural factors of health is necessary for improving the health status of people.

There is an urgent need to undertake studies of these factors, which are not easily amenable to survey methodology. Perhaps initially, the anthropological approach of participant observation and focused group interviews should be adopted in identifying the various factors. The geographic areas at this stage should necessarily be limited; once the factors are identified, large-scale surveys can be undertaken to assess the extent of their



influence. Thus, multiple methods of research need to be employed in the study of cultural, social and behavioural factors of health.

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## Chapter 34

# Barriers to health in North Yemen: what is the 'evidence' and what 'evidence' is wanted?

Peter Underwood and Dennis Gray

'The natural sciences talk about their results. The social sciences talk about their methods' (Poincaré, quoted by Barnes, 1989).

### Introduction

It was with reluctance that we accepted Professor Caldwell's invitation to address the subject of 'Barriers to health in a North Yemen tribal region'. There was a particular reason for this reluctance, and since it touches on an issue central to the themes of this conference and the 'Health Transition', we will begin by expanding a little on it.

In the mid-1970s, and to the eyes of a Westerner, the mountainous hinterland of North Yemen was an exotic and remote region. The society of Raymah, where one of us worked for three years, appeared strikingly different from the observer's own society and dazzling in its variety and richness. In particular, Western-style institutions, including the health care system, were absent or rudimentary. The encounter of a dense and apparently highly isolated and traditional culture with the debut of a health care system, based on Western notions of cure and prevention, was indeed the stuff of drama, particularly when witnessed by an observer well skilled in the wonders of biomedicine and trammelled but lightly with the basic notions of cultural anthropology. From such a viewpoint the pervasive power of local belief systems, and the way they could stand against improvements in health, became a subject of absorbing interest (Underwood and Underwood, 1980; Underwood and Gray, 1987).

But a wider experience of other cultures, and of our own, has led us to look at these things nowadays with a little more circumspection. While it is clear that cultural beliefs and attitudes do bear study in their own right, and can and do stand as barriers to health, we now believe one must be careful about the conclusions that can be drawn from such studies. All too often, we find researchers and practitioners with an interest in the cultural dimensions of health concluding that health improvements in their study area founder, not on problems of the system itself, such as lack of infrastructure, poor services or even the cultural biases of the staff themselves, but on the weird and intractable beliefs of the consumers. This trap, beautifully discussed by Foster and Anderson (1978), and a highly developed example of the art of blaming the victim, has become more and more obvious to us as we teach and research social science in medicine. Thus underlying our reluctance to discuss barriers to health in North Yemen is a concern that the information we bring forth from our earlier researches can be taken out of context, and used to prove once again that the peasants are irredeemably ignorant: this conclusion must run against the very grain of the Health Transition.

However after some reflection, and a little persuasion, we decided to take on the subject after all, but to give it a twist: we would present some of the results of the earlier studies, duly qualified in the light of the above remarks, but recast to demonstrate



something about the nature of the methods used to produce these results. It was hoped that such an analysis might throw some light on data, on evidence, and on the different methods of scientific enquiry required to explore the health of a community. This might also assist us to elaborate and develop our notions on what constitutes a barrier to health.

In short, then, the purpose of this paper is twofold. First we briefly describe three major parts of a study undertaken in the mid-seventies in an isolated region of North Yemen. Second we compare and contrast these three components in terms of their rationale and methods. This is in order to examine what these studies can tell us about the nature of scientific enquiry in general, and social scientific enquiry in particular, with respect to the investigation of health and disease in a community setting. This twofold purpose reflects what we judge to be two of the key themes of this conference and embodied in its title: first, do medical and social factors influence health? and second, how do we know they do? We add a necessary disclaimer: we are using these Yemeni studies as examples not because we judge them to be scientifically impeccable, but merely because we know them best; and because after all, we were asked to talk about them.

Three little studies - methods and results

First then turn to the studies themselves.

The first part of the study which we will examine aimed to establish the patterns of child growth and malnutrition in the study area (Underwood and Margetts, 1987). Briefly, the study was undertaken in Raymah, a mountainous massif containing 150,000 people, almost all subsistence farmers; at the time no roads penetrated the region and outwardly the social structure was little influenced by Western patterns of infrastructure and organization. We examined the growth patterns of children living in the immediate vicinity of El Jabin, a tiny township and administrative capital of the region. This focus was chosen both because the briefest acquaintance with the society indicated that childhood malnutrition seemed widespread, and because there were no extant data of any kind on nutritional status.

Table 1 shows the major aims and methods of the study, which was a relatively small nutritional survey of a subdistrict (El Jabin) of Raymah.

Table 1  
Nutritional status of under five population

Aims	Study population	Major variables measured	Measurement by	Major steps in data analysis
1. To describe the growth and patterns of malnutrition in children under 5	Children of sub-district of El Jabin (n=159)	1. Weight  2. Age  3. Sex	1. Weight – weighing subjects using scales using trained observers 2. Age – interview of care-givers by health worker.	1. Organization of data in terms of variables of weight and age. 2. Statistical comparison of data with established growth standards. 3. Interpretation of data.

The study produced the following conclusions: amongst under-fives, child growth was extremely poor; in terms of weight for age deficit, 28 per cent of children under five were less than 60 per cent of weight for age, i.e. severely malnourished; relative growth rates fell slowly in the first six months of life, then drastically between 6 and 18 months, then began to

accelerate again. Rates of malnutrition were significantly highest during the 6-18 months period.

The second study was a little more ambitious. Table 2 shows the aims and method of this study, which explored feeding patterns in the same subdistrict and nearby villages.

**Table 2**  
**Patterns of feeding in under-fives**

Aims	Study population	Major variables measured	Measurement by	Major steps in data analysis
To investigate patterns of infant feeding in children under 5	Children of sub-district of El Jabin (n=159) 2. Children of nearby rural townships (n=44)	1. Age, Sex, Weight. As for first study 2. Feeding patterns	1. Age, Sex, Weight as for first study 2. Feeding patterns 2.1 Informal interviews and observation to establish feeding pattern. 2.2 Interview of care-givers using structured interviews. 2.3 Observation of feeding behaviour.	1. As for first study, plus 1. Organization of informal interview data and generation of questionnaires 2. Comparison of feeding data with growth data and 3. Interpretation

The conclusions to the second part of the study were: breastfeeding was of relatively short duration (mean = 4 months); breastfeeding was replaced with bottle feeding using mainly contaminated and diluted artificial milks; in the period 6-18 months, the period of maximum growth failure, the majority of children were receiving only milk without solid supplements; growth rates were better and breastfeeding longer in the more rural villages outside the subdistrict of El Jabin.

In short, it is very clear that malnutrition was a central health problem in the area, and that behavioural patterns (here feeding patterns) were closely related to growth deficiency.

The final component of the study concerned an analysis of attitudes and beliefs in relation to disease and health care utilization (Underwood and Underwood, 1980).

The conclusions derived from this study were that the local people had a system of beliefs about the origin, prevention and cure of disease which was well organized and more or less consistent; that the system explaining disease was different from Western notions and depended on both natural and supernatural causes; that these attitudes and beliefs can stand as barriers to the people's understanding of the origins of poor public health (water supply, sanitation, food) and to biomedically based interventions at the level of the community and the individual.

Note that this study and the one that followed it (Underwood and Gray, 1987) emphasized the potential of the biomedical model as well as the traditional model of health to act as a barrier to health. The authors argued that while traditional beliefs can inhibit improvements in health, it is vital to understand and accommodate them within the structure of the health system.



**Table 3**  
**Attitudes and beliefs towards disease and treatment**

Aims	Study population and source of data	Major variables measured	Measurement by	Major steps in data analysis
1. To investigate local beliefs and attitudes towards health and disease	1. Approximately 100 persons including health workers, patients, mothers, hospital persons, travelling campions.. This was sometimes deliberate but more often opportunistic.	1. Data gathered on aetiology, natural history, prevention and treatment of disease	Unstructured interviews recorded in field notebooks by Underwood with the help of a local field assistant.	1. Organization of data from field notes into categories. 2. Search for regularities and temporal connections, interpretation.
2. To relate attitudes and beliefs to disease treatment and prevention	2. Immunization clinic records	2. Attendance at immunization.	Participant observation  Clinic records, individual care studies.	

**The three studies: Similarities, contrasts and a hierarchy**

Having briefly presented these three studies, let us look more closely at their methods. In broadest terms each study followed a similar set of steps. After all their purpose was to move from observations about the concrete world towards the establishment of generalizations or theoretical statements.

In more detail the actual steps which generated this progression from ‘data’ to ‘evidence’ and were common to each of the three studies were: (a) defining a viewpoint; (b) defining a set of assumptions; (c) formulation of possible hypotheses and questions; (d) collection of data, and (e) analysis: (i) definition and summarization of raw data, (ii) description of particular variables, (iii) presentation of data, (iv) search for regular relationships, (v) measurement of the strength of relationships, (vi) assessment of the validity of findings, (vii) interpretation and (viii) verification.

However, if the steps are the same, it is also clear that the studies differ in important ways. These differences include both the type of question asked and the actual methods used to collect and analyse data in order to answer these questions. What are these differences?

The first study is conventional and uncontroversial. The aim is to measure and describe growth. It depends on a well grounded basis of knowledge (the biological principles of growth), a recognized way of mathematically representing the population (sampling), and the measurement of variables – weight and sex – which can be described quantitatively within recognized limits of precision by a machine. The methods of analysis stress quantitative description and quantitative statistical comparison with recognized mathematically based standards. What is also crucial is that amongst trained nutritional epidemiologists there would be a consensus whether the questions asked were reasonable, the methods used sound and the conclusions justified. Such a consensus might explain, at least in part, why the studies were eventually published in *Social Science and Medicine*, rather than a journal of nutrition!

The second study moves on from this, for it specifically attempts to measure a ‘social’, rather than a strictly biological attribute. In this case the attribute was a behavioural one: feeding behaviour. The collection of data on behaviour requires human interviewer-

observers; a machine cannot interview other human beings nor can it observe how they feed their babies. Furthermore, in order for the interviewer-observers to gather good data they must be trained in the task: to do this they must cultivate considerable local knowledge and particular skills. The recognition of the numerous pitfalls inherent in this step is one key and often neglected step in social research; while it is harder to measure the validity and reliability of the data gathered by the interviewer-observer, it can and should be measured. In this case, interpretation here depends more on description, and qualitative rather than statistical correlation.

The final study is even further down the track. Here the aim itself involves the investigation of belief, a phenomenon unequivocally influenced by the social and cultural dimensions of humankind, and clearly, indeed notoriously, dependent on the method of enquiry, and the skills, knowledge, viewpoint and assumptions of the interviewer. Finally, a group of social scientists asked to review the results of this study would not easily reach a conclusion as to whether the results are justified by the methods and aims; if they contained a Marxist and a phenomenologist they might not even get past the aims! Interpretation here depends largely on qualitative description and correlation.

### **Social, natural and medical sciences**

So we have described three studies which attempt to investigate a series of questions vital to health in a particular community. In so doing the studies form a simple hierarchy: at one end of the spectrum is a study which investigates child growth and is largely biological and quantitative; at the other, one which assesses attitude and belief and is highly social and qualitative<sup>1</sup>.

John Barnes, a distinguished research fellow at ANU, has given much thought to the question of the particular distinguishing characteristics of social science. His model might help us to understand something more about the hierarchy we have described here.

He notes five characteristics that distinguish social science, particularly in relation to natural science. First he notes 'the dialectical relation between social scientists and theories they have supported or contested': there is much more of a two-way relationship between the social scientist and observed phenomena; second is 'the competence of lay citizens in the subject matter of social science, contrasted with their comparative lack of competence in the natural sciences'; third there is 'the impossibility of preserving a technical language in social science uncontaminated by lay connotations'; fourth is 'the propensity of common sense to soak up the achievements of empirical enquiries'. Finally, he adds a further important difference:

the corpus of accumulated social science understandings lacks propositions analogous to the laws, that is to say hypotheses that have survived attempts at refutation, that characterise natural science..... Social science understandings are made up of interpretations and models, together with a vast but only minimally inter-related array of empirical findings (Barnes, 1989:8).

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<sup>1</sup> It is important to note that quantification *per se* does not necessarily confer a greater proximity to the natural science paradigm. The qualitative-quantitative debate is a separate, if related, issue, and requires urgent attention.



If we look at each of these three modest examples, we see that as we advance from the simple nutritional study to the study on feeding behaviour and then to the one on attitudes and beliefs, each begins progressively to take on more of the attributes of social science. In particular the role of the observer becomes more important, or, to put it another way, the distinction between observer and observed becomes less clear. By the third study on attitudes and beliefs, the observed (the subjects) are providing not only data on what the subjects believe, but a measure of interpretation as well, as they seek to explain their world to the observer. The attraction of a machine to measure variables can be seen in the above light: the machine apparently helps to separate the observer and observed by simplifying, reducing and objectifying the observations (Reiser, 1978).

From this example, and from the most casual observation of medical research publications and journals, it is clear that medical science is indeed a broad activity and one which straddles Barnes's natural-social science divide. On the one hand we have studies on the biophysical permeability of cell membranes to drugs and on the other the study of health beliefs, attitudes and behaviour.<sup>2</sup> What we have attempted to do here is to show something of this hierarchy in one particular context, the context being an attempt to examine some of the key health problems of a remote community. The important problems that emerged were not only biological, in the strictest sense, but also social and behavioural: their investigation necessitated the methods of social enquiry. This may seem self-evident. However there is here a central paradox. The paradox is that although it seems beyond argument that we must investigate social as well as biomedical factors in disease causation and treatment, the argument continues as to whether we should. There are two reasons for this.

The first is that amongst some the biomedical model, a natural science paradigm, still rules supreme. If this were not so, surely we would not be still debating whether social and behavioural factors influence health status, one of the few subjects in which 2,000 years of common sense, medicine, literature, and religion, taken with 150 years of scientific enquiry since Engels and Virchow, agree unanimously. Boiling away, above all in the medical schools which govern much of the ethos and the activity of medical practice and research, is the belief that disease is ultimately about cells and molecules, while the social, cultural and emotional attributes of those collections of cells called humans who harbour the diseases are peripheral at best and contaminating at worst. Biomedicine and technology are a potent alliance and remain more or less opposed to a more social model of medicine (Reiser, 1978; Underwood *et al.*, 1986).

The second reason for doubting the value of the social approach is not ideological but practical. Many broad-minded medical scientists do not dismiss the social origins of disease, or the central role of society and culture to disease treatment and prevention, but consider such areas unresearchable. Rather like the older Virchow 150 years ago, they turn their faces from the muck and mystery of humankind to the safer and more easily controlled world of the microscope and the laboratory.

In this paper we have indicated our response to both of these criticisms. In Raymah at least there seems no doubt that society and culture are inextricably linked with disease and

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<sup>2</sup> We recognize that the very choice of focus, whether that be the molecule or the social structure, is one governed by the investigator's beliefs, and so socially conditioned: for the present argument this has not been discussed (but see Underwood *et al.*, 1987).

health. One must study them because the link is there. We have also alluded to the second problem of attempting to produce good social research, of devising reliable methods to produce sound evidence from the rich, complex real world of social beings. Another paper would be required to tackle this question in depth. Let us say though, that we believe that there is good and bad social science, even though the ground rules are less well known and the models and interpretations that result more fluid.

We have been asked to discuss 'barriers to health'. In this talk we have brought out both some specific barriers to health, particularly those related to behaviour and belief, and a more general barrier, the difficulty of studying those very social factors alluded to earlier. In this attempt to elucidate some of the characteristics of social research, we hope we might have been able to clarify and reduce a few attendant misunderstandings and so encourage some to tackle this particular barrier.

We would like to conclude with the uncharacteristically optimistic words of John Barnes (1989:23): 'In the natural sciences law like generalisations help us to understand how things work, whereas in the social sciences generalisations help us on the way to making things work differently'. If we want things to work differently, we will need more science, if of a more social kind. And even if this process is judged by some as akin to madness, a first step is to show there is method in it.

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## Chapter 35

# Culture and health in sub-Saharan Africa

Sam Gaisie

### Introduction

After the disastrous initial contact period in Africa, many policies of the colonial powers abetted population growth. Mortality was decreased by the discouraging of warfare and slaving, by wider exchange of food products and by public health programs, especially after the Second World War.

Many African countries did not experience any significant declines in mortality levels before World War II. They entered the second stage in the mortality transition with a precipitous decline that accompanied the introduction of newly discovered medical technology: gains in life expectancy of about a year per year were not a rarity during the 1950s and early 1960s. The most powerful impact must be attributed to the intervention to eradicate vector-transmitted diseases. The introduction of vaccines against tuberculosis, diphtheria and to a lesser extent measles, and the importation of sulpha drugs and antibiotics for the treatment of diseases affecting the respiratory and digestive system played an important role in the mortality transition.

Estimates based on the Coale-Demeny Model Life Tables indicate that the life expectancy at birth of 32 years in 1950 increased to 42 years in 1970 and to 46 years in 1978. The corresponding estimates based on an exponential curve are 31 years in 1950, 43 years in 1970 and 47 years in 1978. The average life expectancy for the region is computed to be 55.7 years by the end of the current century, i.e., 1995-2000 (UN, 1985:20). The region's infant mortality rate is purported to have declined from 182 deaths per 1,000 live births in the 1950s to 125 in 1980 and it is assumed that the downward trend will continue to 84 by the end of the century. Figures for individual countries show that the rate will not fall below 100 deaths per 1,000 live births for the majority of the Sub-Saharan African nations (UN, 1985).

These figures paint a picture of quite modest progress: an average of less than half a year's gain in life expectancy per annum over the past four decades. This is a modest rate of improvement for Sub-Saharan Africa, a region that began the mortality transition with by far the lowest average life expectancy in the world, and there are no clear indications that any of the countries in the region will experience very rapid subsequent gains. Many analysts have assumed that the high-mortality countries will tend to experience the most rapid improvements because their populations suffer from many diseases that can easily be prevented or cured.

For instance, nearly all infant and childhood deaths result from the combined effects of nutritional deficiencies, infections, and parasitic and respiratory diseases which can be drastically reduced or eliminated by removing environmental factors that promote them. Deaths caused by these diseases constitute about 40 per cent of hospital deaths. Infectious and parasitic diseases and diseases of the respiratory system constitute the dominant causes of death among African children aged under five years. Unfortunately, many serious constraints on health progress in Sub-Saharan Africa have led to slackening of the momentum of the downward trend in mortality and it has been noted that further

reductions in the level of mortality can only be achieved by modifying conditions that affect general exposure to diseases and enhance resistance of the host. These include improvements in the environmental hygienic standards, better nutrition and access to periodic medical care.

This paper examines in general terms some of the major constraints on health progress in Sub-Saharan Africa and the need to study the influence of social and cultural phenomena on sickness and effectiveness of medical care and organization. It argues that the study of the social context of illness and health might broaden our approach to the understanding and treatment of diseases and illness in a community where social, economic and cultural environments play a major role in lowering morbidity and mortality rates. Since economic and social environment is an integral part of the natural environment, it also helps in the determination and prognosis of disease. The paper therefore stresses the importance of developing appropriate strategies and mechanisms for tackling health problems in transitional African societies with desperate economic situations and distinctive modes of life.

### **Theoretical frameworks**

The basic tenet of the reformulated demographic transition is that a change in the social structure is necessary to bring about a decline in fertility. However, the kind of social change, when, why and how it is occurring, and the precise nature of the society to which it is giving rise in Sub-Saharan Africa, are all complex issues which cannot be explained within the theoretical frameworks based on the complex set of changes that occurred in Western Europe in the long period from the 16th to the 19th century. An attempt to understand these changes in Europe led to a distinctive corpus of social thought which has evolved into modern sociology.

The different strands of thought generated fundamentally different accounts of what had actually happened as well as diverse descriptions of contemporary society. Three most important accounts are those of Max Weber, Emil Durkheim and Karl Marx, who all focused on the collapse of old traditional societies and the emergence of universalistic and impersonal social structures. This dichotomy and the subsequent search for a source of authoritative moral order has dominated sociological thinking on 'social change' ever since. These are the theoretical frameworks which social scientists have employed in studying the problems of development in the Third World since World War II.

Scholars assumed that the new Third World nations including Sub-Saharan African countries would tread the path taken by Western European nations, and the theoretical paradigms developed to explain the transition from feudalism to capitalism in Western Europe could be imported wholesale or with very few emendations into the study of Africa and other Third World countries. The theory of social evolution, for example, is too general to be able to offer explanation for all forms of social change including that which was triggered by contact between two cultures and variability of institutionalized solutions to the problems arising from the differentiation and reintegration processes. Variants of the theory of social evolution exist in the form of theories of 'stages of growth' and 'modernization' in general. The most widespread is the dichotomy 'traditional - modern'. The assumption is that all societies were alike at one stage, in that they were traditional, and eventually they would also pass through the set of changes that had taken place in the West, and become modern. But societies in Africa are neither feudal nor capitalist; they are composed of a modern sector and a traditional sector. Most of their social structures



are dissimilar in many ways and their inner dynamics and internal contradictions are not the same as those of European feudalism.

Furthermore, the assumption of unilinear evolution is untenable because most of the processes of change which have occurred in African societies have been in direct response to the impact of the outside world; the process of social change is therefore not always essentially endogenous.

The modernization theory is also based on the idea of structural differentiation, a process by which more specialized and more autonomous institutions are established in several different spheres: the economy, the family, the political system and religion. Modernization of technology leads to a change from simple traditional techniques to application of scientific knowledge and the movement from subsistence to commercial farming also leads to a specialization in cash-crop production and development of wage labour. Industrialization and urbanization start a transition from the use of human and animal power to that of machines and a movement from the rural to the urban areas. These processes tend to affect the social structure of traditional societies in similar ways. Structural differentiation occurs in the process with several kinds of economic activities being separated from family institutions. Cash cropping leads to the separation of consumption and production activities normally associated with the household, and wage labour undermines the production system. Thus, the nature and the functions of the family change. It is no longer the basic unit of production, and the pattern of authority is transformed as the elders lose control and the nuclear family becomes differentiated from the extended family. Occupational, political and religious posts tend to be determined more on the basis of achievement criteria than on ascription, and multifunctional religious and political roles are replaced by more specialized structures.

These differentiated structures are integrated and united on a new basis. The kinship system is therefore superseded by specialized political parties, pressure groups and a state bureaucracy. Peasants and ethnic groups develop new types of social relationships through participation in the modern co-operative-type enterprises, trade unions, and labour recruitment agencies.

However, structural change brought about by the disturbance of the traditional equilibrium as a result of colonial rule, commercialization of the economy, urbanization and industrialization, as well as the possibility that differentiation and uniformity may co-exist in any society, show the untenability of the major assumptions in the modernization theory. Furthermore the variability of the response of certain structural elements to external stimuli casts doubt on the regularity of the pattern of change that may be expected, and throws some light on the erroneous assumption of the internal homogeneity and stability of any society. Finally, emergent problems associated with differentiation and integration and feedback mechanisms may also affect the course of events so that the resulting pattern of change may be different from the expected one.

Application of the modernization model to the societies south of the Sahara reveals certain unique patterns of change. A major characteristic of the process of modernization is that it has been unbalanced, especially in the relationships between the processes of change and the transition between the 'modern' or 'central' institutions and the local ones. The major changes introduced either directly or indirectly by the colonial powers were focused on the central institutions of the society; particularly in the broad frameworks of the political and economic institutions. Introduction of a unitary system of administration,

including new taxes and improved methods of collecting revenue, and establishment of modern court procedures greatly changed political structures and conditions. The changes led to the emergence of certain universalistic criteria and orientation toward general rules and modern procedures compared with the particularistic tendencies inherent in the traditional political structures. Many economic changes were also effected, notably the change to the market economy. The installation of new transport networks, the establishment of unprecedented law-and-order, and provision of various health and educational services influenced virtually all aspects of exchange and production. Changes were limited to the infrastructural and commercial sectors of the African economy; systems of large-scale production, using factories and power-driven machinery, were scarcely introduced into the colonies. The farmers were partly integrated into the cash economy. They cultivated crops destined for remote markets and made use of purchased tools and chemicals as well as wage labour; at the same time they continued to grow their own food supplies and organized their work around hoe-and-cutlass technology and the inherited kinship system. The food supply system was not changed: food continued to be produced for subsistence by means of long-fallow methods and no attempt was made by the colonial authorities to encourage production of surplus crops. The division of labour by sex in most areas of long-fallow agriculture helps to explain the prevailing low technical levels of food production in many areas in Sub-Saharan Africa.

About two-thirds of the African railways built in the colonial days connected mines to a coastal harbour; they were built to make exploitation possible and there were few of them. The enclaves of colonial economic development attracted migrants whilst non-migrants largely comprising women and children remained in the rural areas of subsistence producers. Wages covered little more than minimum subsistence costs for a single person. Long distances to potential markets and poor transport infrastructure are among the major factors which discouraged African farmers from becoming commercial farmers on a large scale. In urban areas the small number of Europeans and, in some cases, Asians monopolized access to all jobs requiring any but the simplest skills, so the indigenous population was barred from contact with modern technology. The towns were not producing non-agricultural products in exchange for food from the surrounding rural areas. Towns and rural areas were supplied by imports which acted as a formidable obstacle to the development of urban crafts and industries. Thus, no industrial skills were developed and neither mining nor administrative centres grew into centres of manufacturing. The system of production at the individual farm level did not change and despite the rapid cash-crop expansion during the colonial period, the traditional technology and social organization survived in the countryside.

Thus, the administration tried to accomplish innovations in the political and economic spheres within a relatively unchanging social setting with the implicit objective of limiting changes to technical matters. In other words, new administrative, political and economic structures were superimposed on relatively unchanged traditional structures including traditional attitudes and loyalties. There were, therefore, few modernizing groups in the economic and cultural spheres. A relatively quick development of political aspirations among the larger social groups preceded modernization in the economic, professional and even educational fields; the high level of political modernization, however, gave rise to a faster development of educational facilities and aspirations.



It is therefore not surprising that an important basic characteristic of the modernization of the social groups in African societies is the persistence and structural recrystallization of various traditional structures. The recrystallization of the structural characteristics of modernization underlines some potential weaknesses of the newly emerging social structures. It appears therefore that traditional or ethnic frameworks are necessarily the most important determinants of the degree of adaptation to modern conditions including changes in reproductive and health behaviour. The important elements seem to be the degree of solidarity of the family and community (e.g., kinship system). The family and kinship networks are still of great importance to sectors of the urban community including the very poor.

People reformulate their norms about kinship relationships but do not simply give them up. The question is to what extent the changing social structures of African societies are developing conditions for the emergence of flexible frameworks that facilitate the organization of development policies and programs.

### **The relevance of the existing institutional context**

Ever since Durkheim drew attention to the importance of social facts, social scientists have generally felt justified in asserting that the social climate exerts influence upon the behaviour of individuals. It has been well accepted that the value systems and normative milieux of the social structure typically influence the behaviour of individuals through transmission and enforcement of certain specific norms and behaviour. Common values and norms are embodied in a culture or a network of social relations in which processes of social interaction become organized and through which social positions of individuals and subgroups become differentiated. The individual's own characteristics which influence his or her own conduct may be socially acquired or defined. Social facts exert great impact in African societies where traditional and transitional social structures exist side by side and affect individual behaviour in diverse ways. Analysis of any socio-demographic phenomena in such a society cannot, therefore, be efficiently carried out without substantial knowledge of the structural principles which underpin the society. The following section, therefore, provides a view of the social milieux which have given rise to the existing demographic and health patterns in some African societies.

### **Some aspects of traditional African societies**

Traditional social structures have been designed in accordance with certain principles and the character of a given social structure largely depends on the combination of the principles employed. The application of the unilineal principle, for example, provides a means of dividing a society into separate organized kin-groups such as patrilineal and matrilineal lineages which have temporal continuity extending beyond the lifetime of an individual as well as a family. The principles of solidarity and unity are then used to order the complex network of relationships which constitute a social structure. These social relationships are institutionally defined on the basis of the principles of the continuance and stability of the system. The ordering of different categories of social relations is executed in terms of different kinds of social and individual interests, rights, duties and values.

Individual interests are subsumed under that of the corporate kin-group (e.g., lineage) which is responsible for serving and protecting the politico-ritual and jural interests of the

community. In other words, the politico-ritual kin-group takes care of the common good of the entire society including the reproductive needs of the community.

The kinship system which has been designed and built on the principles noted above is, therefore, the most important feature of the traditional social structures; an articulating principle of the structure and the chief source of social cohesion. It is a cornerstone of the social structure; maintaining the social equilibrium by linking the reproductive needs of the society with other parts of the social structure including economic activities, religious beliefs and moral values. The social structure may, therefore, be likened to an organism whose stability or homoeostatic condition rests heavily on the kinship system. The degree of interdependence between the various parts of the system is reflected in the '...innumerable social activities that can only be effectively carried out by means of corporate groups' (Radcliffe-Brown and Forde, 1950:43). The facts of sex, procreation and rearing of offspring which 'constitute only the universal raw material of kinship systems' are built into the social structure in such a way as to direct the entire system towards a maximum satisfaction of the needs of the community. The perpetuation of the line of descent is of transcendent importance to all traditional societies and this idea lies behind many of the traditional institutions. The family and kinship structures therefore function in such a way as to ensure the survival of the traditional system or the society. The individual is highly dependent upon the family for protection, influence, support and social status. Children do not compete with either things or activities to which parents could have devoted their money, resources, energies or leisure time. In such a society there is intensive control over such elements as the roles and activities of women and youth as well as over social and geographical mobility. Individual lifestyles are determined by the norms and values of the system. Adults' responses to social situations including medical situations are influenced by the manner in which they are reared and educated and by the mode of life peculiar to their society. Reactions to pain and illness are part of the whole system of beliefs and values which influence the behaviour of the individual. Thus, the social structure plays a major role in the causal explanation of prevention and treatment of diseases.

For instance, there is a general belief in African society that witchcraft is an important cause of illness: if, for example, a hut collapses on people and injures them, the obvious fact that termites have eaten away the wooden supports is readily accepted as the immediate cause, but the major question is why these particular people happened to be in that hut at the particular time when it collapsed. In resolving this issue the collapse of the hut may be attributed to the intervention of witchcraft (Evans-Pritchard, 1937:69-70). Similarly, if one stubs one's toe against a tree-stump while walking along a path to a farm and the wound subsequently festers and the toe hurts, witchcraft may be blamed for the injury. One has always traversed the path without stubbing one's toes, and even if one did, the wound did not turn septic. Why is it that at this particular time the injury troubles the victim? The coincidence of the injury may be attributed not to chance, but to the malice of a witch (Evans-Pritchard, 1937:65-66). In African societies old people, especially old women, are almost invariably blamed for other people's misfortunes, illness, etc. Witchcraft is therefore used to explain events and behaviours that otherwise appear to be motiveless. It may be regarded as a theory of multiple causality as well as a system of beliefs that explains why an event occurs and not how it occurs.

This reasoning indicates the fundamental interrelationship between medical systems and social structures. Social and cultural habits, values and attitudes and the state of the



economy influence the development and quality of the medical system and in consequence the state of health of a people. The African traditional medical system, for example, is based on philosophical and cultural foundations that embrace social, psychological and physical aspects of illness; all these elements are combined in the formulation of the 'social causation theory' in traditional medicine. The African healing theory is therefore a holistic one, embodying all facets of the society. It addresses itself to all elements including historical, political, economic, spiritual and social factors and is therefore not applied only at the somatic level (see Twumasi, 1988). These elements constitute the social or traditional sphere which has been touched by the processes of modernization. There is no doubt that modernization had led to the lowering of mortality and morbidity rates thereby improving the health status of many Africans; but to what extent has the changing social structure facilitated or impeded the process of health transition in the region?

### **The changing social structure**

Social change may often result in restructuring the institutional relations between individuals, groups and even systems and subsystems. The processes of social change involve societies in becoming more complex, adding more institutions - school, factory, mine - which are grafted onto the previously existing social structure in which kinship and the family loom large. Africans, for example, are therefore faced with problems as they try to bring their new roles into relation with the roles they already occupy in the kinship system. For instance, it has been noted that tribal associations in East, West and Central Africa

...mark a stage in which immigrant workers have become sufficiently used to town life to be able to organize themselves effectively in that context, yet on the basis of interest fundamentally centred in the countryside, indicating that they reject any irrevocable commitment to the town (Southall, 1965:37).

Austen observed that

the social costs of family maintenance and worker insurance and retirement were borne by the rural areas of origin. The migrants themselves while undergoing considerable physical and psychological strain, at least did not have to give up the security of a rural subsistence base. Indeed, as low as wages were, they often provided capital for investment in land, cattle and marriage while local political authorities received recruitment bonuses (Austen, 1987:165).

The farming family, therefore, provides a base for retreat and succour to the unsuccessful migrant in the town as well as security for the aged (Southall, 1965:36; Caldwell, 1982:361).

In societies of this kind, then, although the institutions may have begun to take root it may not be possible for all to avail themselves of their services. People's needs to borrow, save and mobilize capital and to secure their future are met through the kinship system. Kinship is therefore used to gain ends. Thus, in the changing societies, new demands are made on the kinship system and people respond to family claims in new ways and with new resources. The nature of the new demands and resources and the extent to which the existing kinship system enables people to meet those needs and fulfil both old and new expectations are complex issues which require further research. Some of these issues have been discussed by Caldwell in his attempt to restate 'demographic transition theory',

especially the fundamental issue relating to the 'directions and magnitude of intergenerational wealth flows' (Caldwell, 1982:140). However, family and kinship generally seem to change rather slowly, exhibiting indeed a massive continuity compared with more rapid changes in other institutions. In his analysis of the changing processes in Africa, Eisenstadt (1970:353) observed that the modern sector is 'more heavily concentrated in the administration and political than in the business or purely economic areas', and much less in the cultural sphere in the sense of reformation of the basic internal value-orientation (Eisenstadt, 1970).

It appears therefore that the process of modernization will, in African societies, necessarily develop structural forms which are in many respects different from those of other modern or modernizing societies. The existing structures, however, pose a great challenge to the social scientists. Although the subsystems of the traditional social structure are being dented by the processes of formal schooling, urbanization and modernization in general, they have not completely disintegrated.

Aldous found that, in spite of the views of some social scientists, in Africa 'the individual urbanite, far from facing the complex urban milieu as a solitary individual, exists in a web of friendship relations in the extended family' (Aldous, 1962:11). In his review of Ghanaian family systems on his return to the country after more than 37 years, Fortes noted that one striking thing about these systems in India as well as in Africa and elsewhere is their tenacity in the face of modern social, industrial, cultural and political changes. Urbanization does not completely undermine matrilineal family patterns nor does western education and the concomitant emergency of new professional elites, or Christianity lead to their suppression. They may be reduced in range but, as we can see from the current state of affairs in Ghana, the basic orientation represented in them, and the value system they incorporate, remain fundamentally unchanged (Fortes, 1971:6).

In her analysis of the conjugal power in Zambian marriage, Munachonga noted that in the context of contemporary Zambian society conjugal power continues to be located in the traditional institutions of marriage, kinship and property despite increase in the levels of education of the couples involved, and in patterns of employment to which they give rise...the persistence of traditional norms and obligations is still of practical relevance, it is still meaningful and necessary for the majority of the population in the contemporary society. By contrast, the ordinance form of marriage which favours the independence of the conjugal pair...has limited meaning even among those highly educated men and women. It also implies that power is dispersed among members of the extended family (Munachonga, 1986:337, 340).

Findings of studies conducted elsewhere in Africa are not dissimilar from the observations made by Munachonga with respect to the Zambian situation. They underscore the fact that



the persistence of the traditional systems of family, marriage and property relations have encouraged segregation rather than jointness in economic relationships between husbands and wives. In the sphere of decision-making, findings indicate that wives are still required to defer to their husbands (Munachonga, 1986:344; see also Little, 1973; Obbo, 1980; Oppong, 1981; Abu, 1983; Vellenga, 1983; Karanja, 1983).

Thus, the juxtaposition of traditionalism and modernity has, therefore, rendered the analysis of the major features of African society a difficult undertaking because Africans, at any rate most of them, operate in the traditional and the modern social systems at various levels of their social interaction. In the area of human reproduction educated working couples are beset by dilemmas and pressures whilst in the areas of health and illness both traditional and modern healers are consulted either at the same time or at different periods. The African society is, therefore, characterized by relatively fewer modernizing groups in the cultural spheres and in consequence the levels of social mobilization.

Every society therefore has a demographic regime embedding unique aspects of the kinship system; it is impossible to over-emphasize the need to link population policies and programs including health programs and implementation to national, provincial and even local cultures. Among the aspects of culture which are significant for population programs are religion and, to some extent, 'magic'. Consultations with key representatives of religious leaders and traditional healers ('witch-doctors', in the term coined by colonialists) may enhance the legitimacy of a program as well as generating suggestions with regard to design and implementation of specific programs. Among the Bemba of Zambia, for example, the knowledge of medicine is in the hands of the *n'ganga* (doctor) who also possesses most forms of magic and divination (Richards, 1951). A health program without his participation is unlikely to succeed in a community where he is a recognized member of the community with the 'competence according to traditional usage to practice and to treat people both relatives and non-relatives'. He is a person who has a recognized area of healing or has a definite clinic for consultation' (Twumasi, 1985:2). Another aspect of the link between kinship and population (e.g., morbidity, health, fertility) is in the area of relations within the family. All the family members mobilize resources to assist a sick relative to regain health. Old men and women and traditional healers are consulted for medical treatment and advice. Some sort of a contract is effected between the therapy management groups (i.e., family members) and the healer whose instructions the family makes sure the sick person obeys.

In rural Africa where most people depend solely on traditional medicine for treatment of all kinds of diseases, traditional healers deal with both spiritually as well as physically caused diseases employing a holistic procedure. The use of vegetable, animal and mineral substances as well as social, cultural and religious ideas prevalent in the society for treating physical, mental and social diseases therefore shows the importance of the social system approach to resolving health problems in Africa. Thus, the understanding of how demographic variables and cultures are linked in particular areas is of paramount importance for successful implementation of programs aimed at changing the traditional demographic regime and related behaviour and attitudes of the people. This guiding proposition is based, *inter alia*, on the fact that there has not been any fundamental transformation in the economies of African countries, the pace of change in family relations tends to be slow, kinship systems have proved resilient in their adaptation to change and

they have sustained people in new and critical life situations in towns and cities. Hence the existence of a dual medical system in Sub-Saharan Africa.

### **Medical systems: Traditional and modern models**

The structures and functions of medical systems largely reflect the characteristics of the prevailing social system. Thus people usually know and understand the philosophical and cultural foundations of the prevalent medical system of the society. Their behaviour in relation to health is therefore a social behaviour which, as noted above, involves interaction between the sick person, relatives, non-relatives, traditional healers and cosmology. The traditional medical system does not draw any distinction between natural and supernatural entities. The mode of operation is a holistic one with the 'doctor' covering physical, psychological and social aspects of health and illness at the same time. The traditional medical thought therefore views illness and health within a broader socio-cultural context. Ill-health is conceived as an outcome of 'disturbed' institutionalized relationships or social arrangements which exercise adverse effects on the health of the individual. Treatment involves correction of social wrongs in order to regain and maintain good health.

Among the traditional healers the most numerous are the herbalists who use herbs to cure diseases. Their methods of diagnosis and treatment are often similar to some of the methods of modern medicine though their principles are quite different. The next largest group is the traditional birth attendants who deal with pregnancy and related problems and assist pregnant women in delivering children. Besides taking on the responsibility for delivering the child, they also see to the health of the child and mother.

The other medical system is modern medicine which was introduced into African countries during the period of colonization. Unlike the traditional medicine, the modern model analyses the causes of diseases at the microbiological level and deals with the individual. It is based on rational explanation of natural events in terms of cause and effect. Cause is regarded as natural, in contrast to supernatural causation which has no place in modern medicine. The system is preoccupied with physical illness and there is a clear-cut distinction between natural and supernatural events; an approach which emphasizes the physiological reality of the human organism and tends to neglect socio-cultural realities.

The two medical systems coexist in Sub-Saharan African countries; the traditional system as an integral part of the prevailing social system whilst the modern system exists on the periphery of the traditional and transitional societies. There is functional differentiation between the illnesses treated by the two systems. The traditional healers are reputed to be skilful in dealing with social and psychological ailments; studies conducted in Ghana and Zambia show that physical illnesses are almost invariably referred to the modern healing clinics.

Three quarters of the pregnant women interviewed in a sample of a rural area not more than 20 kilometres from a modern hospital intimated that it was safer to give birth at a modern hospital. In the same sample the majority of the respondents acknowledged treatment of all kinds of illnesses by traditional healers but said they would prefer to use modern hospital facilities if they were available. In the Lusaka urban township survey only 30 per cent of the respondents referred purely physical ailments to traditional healers as their first line of contact or when they become frustrated with modern medicine. Of physical problems the following loom large: menstrual pains, infertility, diarrhoea, fevers, abdominal pains and malnutrition. The findings of the Lusaka survey are summarized as follows:



Clients of traditional healers were of the opinion that due to the non-availability of modern hospitals and clinics the only alternative left for them was to go to traditional healers. This view was expressed frequently by rural people. They also stated that there were certain types of problems and illnesses which modern practitioners were not able to deal with, especially those of social and psychological origins. For those problems and illnesses they felt satisfied (Twumasi, 1985).

In a much more rural environment such as Eastern and Luapula Provinces where modern health facilities are lacking, virtually all physical complaints are referred to the traditional healers. Parents took their children to traditional healers for treatment of high fevers, diarrhoea, chest pains, food poisoning and skin rashes (Twumasi, 1985). Out of the total 250 cases examined by Twumasi in Luapula Province, 70 per cent were classified as social-psychological problems while the remainder were physical ailments. According to the respondents, most of the social-psychological cases received satisfactory treatment whereas many traditional healers were not successful in treating purely physical illnesses. The results of the Zambia survey indicate that Africans seek the services of traditional healers mainly in respect of social and psychological problems and that purely physical complaints would be referred to modern hospitals and clinics for treatment if such facilities were available within a reasonable distance.

### **Inadequacy of existing medical systems**

The foregoing observations indicate that many traditional healers have not been successful in treating purely physical ailments whereas modern doctors have been successful in treating specific acute maladies. Thus, the nature of contemporary African societies underscores the weaknesses of the two medical systems. The traditional medical system has not been able to adapt itself to the changing social structure and the modern medical system has not been able to offer comprehensive services for the treatment of both physical and social-psychological sickness. Co-operation between the two systems would enable the modern medical personnel to treat social and psychological illness while improvements in the diagnostic and therapeutic skills of the traditional healers would save a significant number of lives in the rural areas and areas without facilities. Thus a dialogue between the two systems would go a long way toward improving rural health services in Africa. Such co-operation is long overdue since African social structures are neither exclusively traditional nor exclusively modern.

It is, however, in recognition of this fact that some African governments are advocating improvement in the services of traditional healers in the areas of testing herbal preparations, preservation of drugs, storage facilities and guidelines for dosage. In Ghana the attempt to study the traditional medical system dates back to 1963 when efforts were made to get the traditional healers to form an association. The establishment of the Institute of Herbal Medicine at Nsawan in Ghana is evidence of the country's efforts to upgrade the status of traditional medicine. In Zimbabwe, an attempt has been made to register all traditional healers and a healer must possess a community-based licence before being permitted to practise. In Zambia, the Witchcraft Act of 1914 which was introduced during colonial times was modified in 1968 in order to permit traditional healers to practise openly. The traditional birth attendants are enjoined to attend refresher courses to upgrade their skills and standard of hygiene. Herbalists are also required by law to subject their herbs to scientific analysis.

In a recent press statement, the Managing Director of Medical Stores appealed to the traditional healers to make available the names of herbs so that the plants could be analysed properly with modern equipment, and their useful components standardized and administered by both physicians and healers. He reiterated that while the Medical Stores was improving its drug manufacturing and supplies, it was also developing the use of traditional medicines. The medical profession 'want to collaborate with them so as to advance and improve on the traditional medicines' (Chikusu, 1989).

In a letter to the *Zambia Daily Mail*, Mutwale (1989) compared the two medical systems and appealed for recognition of the value of traditional medicine:

May I express my views on traditional healing and other home remedies. For many sicknesses, time-tested home remedies work as well as modern medicines, if not better. They are often cheaper and safer. For example, many of the herbal medicines used for coughs, TB and other chest disorders including colds do more good than cough syrups and other medicines urban doctors prescribe. Many plants have curative powers and some of the best modern medicines are made from wild herbs.

There are some illnesses [of] which medical doctors fail to identify the cause despite their knowledge and qualifications. This is because some of the illnesses people suffer from are caused by an influence of evil spirits and witchcraft. Such illnesses are beyond the scope of the medical doctors. Take for example many of the disorders people suffer which are never treated in hospitals. As a healer of many years of experience, I have witnessed many relatives of sick persons requesting hospital authorities to prematurely discharge them in order to seek the attention of traditional healers who eventually succeed in treating them. For such illnesses relatives have found that hospitals are not the answer. Today, many deaths occur among patients due to lack of treatment and such deaths are still continuing.

In other countries, witch-doctors and herbalists have been attached to various hospitals dealing with cases medical doctors fail to cure. I therefore suggest that the Party and its government should allow provision of consultation and treatment rooms for traditional healers at hospitals making them work side by side with medical doctors. Health for all by the year 2000 does not omit traditional healers (Mutwale, 1989).

Recognizing the need to involve the traditional healers in the health improvement program (e.g., Primary Health Care Program) the Government of Zambia has taken a series of positive steps towards professionalization of the traditional medicine.

1. The 1914 Witchcraft Act was modified in 1967 to encourage the growth and development of traditional medicine.
2. In 1977 the Mulungushi Conference called for mapping-out of areas for co-operation between traditional healers and modern doctors.
3. In 1980 World Health Organization expert Dr. R.H. Bannerman from the Office of Traditional Medicine was invited to the country. He drew up a constitution for traditional healing.



4. In 1981 an Office for Traditional Medicine was created in the Ministry of Health. It is manned by a schedules officer.
5. In 1982, THPAZ was formed. This association has received national recognition and it is supported actively by the Department of Cultural Services.
6. In 1983 the Ministry of Health started to prepare a document to be presented to Parliament for the formation of a national Council of Healers.
7. In 1984 the Department of Cultural Services in Mulungushi Hall gave THPAZ an office. There is also a research officer for the study of traditional medicine (Twumasi, 1985).

In Lesotho, traditional healers have been asked to register their profession with the support of the community leaders before they are allowed to practise. In Ghana, the Danfa and Kintampo projects throw more light on the modernization process. Since the early 1970s traditional birth attendants have been retrained and traditional healers have been visited with the aim of improving health care in rural areas; local people including traditional healers are being incorporated into the primary health care program. There are strong indications of African governments' efforts to encourage traditional healers to meet acceptable standards so that they can effectively participate in the primary health care program. It seems that the two medical systems can be fused without many problems in the framework of the primary health care system: an alternative medical model.

### **Primary health care: An instrument for health development in Africa**

The modern health care services are unevenly distributed with the urban areas consuming 80 per cent of the health budget: for instance, in 1983 about 70 per cent of the doctors, nurses and paramedical personnel in Zambia were working in the towns and provincial cities. In 1988, 80 per cent of the doctors and 86 per cent of all medical facilities were in the urban areas (see Twumasi, 1985, 1988). One of the major drawbacks of the modern health care system has been its emphasis on providing services in hospitals, clinics and health centres and relying mainly on the curative aspects of health care. In the absence of modern health facilities in the rural areas, the country people depend on traditional medicine. Thus the maldistribution of modern health services and the rising cost of the administration of modern medicine have caused most African governments to reassess the potential of traditional medicine for improving public health through primary health care. In order to improve the modern health system, the Government of Zambia has established a primary health care program with emphasis on rural areas. The program includes health education, promotion of adequate nutrition and promotion and maintenance of safe water supply and basic sanitation. Other components include maternal and child health immunization, prevention and control of endemic diseases, promotion of mental health and treatment of common diseases and injuries (Twumasi, 1985:33).

During the past 15 years the Government of Ghana has been developing a primary health care system to bring primary care to the majority of the rural people. A National Health Planning Unit was set up to implement a program of primary health care, which is defined as basic health care which uses local experience and materials to give members of a community promotional, preventive and curative care as an integrated whole. The goals 'range from health as a political and social right to ... health as an expression, or spin-off, of a quietly functioning informed community' (Newell, 1978).

Thus the primary health care system entails a co-operative approach, involving, for example, the agricultural extension worker, the community development officer, the school

teacher, the local leaders, administrative officials, traditional healers and the primary health care workers themselves. Within the framework of the system it is essential to upgrade the skills of traditional birth attendants and herbalists to improve the health of the rural majority of the African population.

The integrated medical system should therefore take into consideration the socio-cultural factors, demographic variables, insights from medical sociology and the nature and types of health problems afflicting a particular community. It must, among other things, consider the interrelationships between health and socio-economic factors. Agriculture, nutrition, sanitation, water supply, sewerage and drainage systems are important elements in the promotional health programs. The primary health care model must be applied as an instrument of community development, which requires a strong political will and decentralized administrative system involving members of the community.

### **Economic situation**

This approach offers some hope of resumption of mortality decline because lack of fundamental transformation of the economies of Sub-Saharan African and sustained economic development has halted health transition. Between 1960 and 1980 death rates declined by about one-third but they still exceed 15 per 1,000 population in most African countries compared with between seven and eight deaths per 1,000 population in China, Mexico, the Philippines and Thailand. In the absence of catastrophes, the death rates should continue to fall as food supplies improve and access to education, safe water, sanitation, and health services expands.

Between 1970 and 1982, however, the gross domestic product (GDP) for Sub-Saharan Africa grew at about 30 per cent a year, at roughly the same pace as population so that there was virtually no improvement for the region as a whole in per capita incomes, which in fact declined as the terms of trade worsened. In 1982 per capita income averaged less than US\$500 in Sub-Saharan Africa and about half of that level in nearly half of the countries. On the other hand, the growth rates ranged between 2.7 and 3.5 per cent per annum; few countries experienced higher rates.

The recession of the 1970s, aggravated by the energy crisis, led to a slowing-down or stagnation of mortality decline. The real growth of GDP in the poorest countries was about 2 per cent in 1973-1974 and by 1975-1976 it had dropped to a negative value, -0.8 per cent per annum. Few countries seem to have been unaffected by the combination of declining production and inflation (see Table I). Economic growth slowed and heavy dependency on one or a few commodities made these countries much more vulnerable to international business cycles and crises. Furthermore, uneven distribution of income contributed to the health problems in the region. Thus, high population growth rates, low levels of food production and economic growth coupled with inflation, wars and extravagant use of public funds for amassing military hardware have affected health transition.

Analysis of the socio-economic and demographic situation in the Sub-Saharan African countries shows quite clearly that further reductions in mortality levels can be achieved only by modifying conditions that affect general exposure to diseases and improve resistance of the host: for example, better nutrition, access to periodic medical care, improvement of environmental sanitation including purification of water and provision of networks of sewerage or hygienic pit latrine systems.



Table 1  
Growth rates of Gross National Product, population and inflation and average life expectancy at birth for selected sub-Saharan countries

Country	G.N.P. real rate (per cent) 1980-1987	G.N.P. per capita (real growth) 1980-1987	Population growth rate (per cent) 1980-1987	Life expectancy		Average annual rate of inflation (per cent)	
				1970	1987	1965-1980	1980-1986
Benin	2.6	-0.6	3.2	44	50	7.4	6.6
Botswana	12.8	9.0	3.5	50	59	8.0	7.6
Burkina Faso	2.0	-0.6	2.6	43	47	6.2	6.3
Cameroon	7.6	4.2	3.3	48	56	9.0	11.0
Cameroun	2.0	-0.5	2.5	42	50	8.5	11.5
C.A.R.	4.9	-2.5	2.4	40	46	6.3	-
Chad	1.1	-3.0	4.2	46	53	9.3	8.3
Côte d'Ivoire	0.5	-3.5	4.1	45	52	12.7	4.8
Gabon	-0.8	-4.0	3.3	38	43	3.0	10.4
Gambia	1.4	-2.0	3.4	49	54	22.8	50.8
Ghana	-	-	-2.4	35	43	2.9	-
Guinea	2.9	-1.3	4.2	47	56	7.3	9.9
Kenya	2.8	0.1	2.7	49	56	8.0	13.1
Lesotho	-2.1	-5.2	3.3	43	55	6.3	2.1
Liberia	3.0	-0.3	3.3	40	46	7.0	12.4
Malawi	2.4	0.0	2.4	40	47	-	7.4
Mali	-7.0	-9.5	2.7	40	48	-	28.1
Mozambique	-2.5	-5.3	3.0	39	45	7.5	6.6
Niger	-1.9	-5.0	3.3	43	51	14.4	10.5
Nigeria	3.0	0.1	2.9	42	48	6.5	9.5
Senegal	-0.1	-2.5	2.4	34	41	8.0	33.5
Sierra Leone	-1.4	-4.0	2.8	42	49	11.5	32.5
Sudan	4.7	1.3	3.4	47	55	4.3	14.1
Swaziland	1.6	-1.8	3.5	45	53	9.9	21.5
Tanzania	0.3	-3.5	3.4	44	53	6.9	6.7
Togo	0.6	-2.4	3.1	47	48	21.5	74.9
Uganda	0.2	-2.8	3.1	45	53	24.5	54.1
Zaire	-1.1	-4.4	3.5	46	53	6.3	23.3
Zambia	2.2	-1.5	3.7	51	58	6.3	13.0
Zimbabwe							

Source: World Bank, Atlas 1988; World Bank Development Report, 1988

The endemicity of infectious and parasitic diseases throughout large parts of Africa leaves much room for improvement and in the absence of sizable economic growth, life expectancy may remain below the levels now prevailing in most parts of the world. The economic recovery programs have not improved the living standards of the poor masses: in many places the standard of living is reported to be declining. Inadequate food supplies relative to increasing demands are apparently the major cause. Inflation rates range from 10 to 50 per cent per annum in Kenya, Ghana, Zambia, Ivory Coast, Nigeria, Zaire and Tanzania.

The foundation for sustained health transition has not therefore been firmly laid in Sub-Saharan Africa; the countries in the region have hardly begun to deal with this complex phenomenon. Health is an integral part of man's social and economic environment which is also part of his natural environment and is of great importance in the determination of the incidence and prognosis of diseases. In the industrialized world, the conquest of disease has progressed *pari passu* with changes in the social and economic environment. In Africa, on the other hand, declines in mortality have been attributed mainly to technological advances in the prevention and control of diseases and the growth of public health and medical services. Mass campaigns against specific diseases and extension of health services are generally credited with much of the achievement in the reduction of mortality. Although public health programs for the control of diseases and progress in environmental sanitation have been extremely successful in generating rapid short-term mortality declines, social and economic factors may henceforth play a major role in the achievement of long-term effects. At least a slowly rising level of living is essential for the achievement and maintenance of low mortality levels; there is therefore the need to develop an alternative medical system or model (e.g., primary health care system) which incorporates the relevant and useful components of both the traditional and modern medical systems; a task which requires, among other things, a study of the effect of social and cultural phenomena on sickness and on effectiveness of medical care and organization. The interrelationships between socio-economic processes and health are complex and intricate and could only be effectively studied by drawing on a number of disciplines including biology and other relevant natural sciences, epidemiology, demography, sociology, social anthropology and social psychology: hence the importance of social science research in the construction of an appropriate medical model for the examination of the problems associated with health transition in Africa and the design and implementation of viable health programs.

### **The relevance of social science research**

The nature of the existing social system calls for the entire social science methodology in the study of a wide range of social, economic and demographic change in order to develop a comprehensive theory or set of theories of change with analytical frameworks which can convincingly capture African cultural realities. Social science methodology can therefore make significant contributions to population and health programs.

Social science research provides, among other things, quantitative data which could help administrators in the design and implementation of programs. For instance, estimation of the size and nature of the demand for services; development of appropriate procedures; training programs and media materials; development of confidence and morale of the core staff and identification of problems that may be essential for the initiation and expansion of the programs are some of the issues which need to be studied



and their findings conveyed to administrators. Recent research has thrown much light on the importance of knowledge about the proximate determinants of fertility (postpartum amenorrhoea, postpartum abstinence, duration of breastfeeding, age at marriage, etc.) in the assessment of the effects of the programs. Since socio-economic and other factors affect fertility, mortality and health status through the proximate determinants, variations in the latter provide a sound basis for determining the program's contribution to changes in the levels of fertility and mortality. Socio-demographic procedures may also be employed for the estimation of the levels of fertility, infant and child mortality as well as growth rates and the results made available to program managers.

Other information is needed on certain aspects of contemporary African societies such as maternal and child health; vaccination histories; incidence and treatment of diarrhoea among children; socio-economic conditions and status; female employment; the value of children; family structure and community variables; types of traditional healers; their socio-economic characteristics; types and nature of diseases they deal with and clients' evaluation of services offered; socio-economic characteristics of clients and their views on effectiveness of traditional medicine in treating psychosomatic and physical illness; the value of children, economic decision-making in the household; migration; natural family planning; major features of the peasant mode of production; and the effect of women's lack of economic power on family size. Such information will assist administrators and project managers in developing locally appropriate procedures as well as designing viable health-related programs. Thus the relevance of participation of sociologists, anthropologists, economists and political scientists in the complex endeavour is quite obvious.

The failure of the family planning program in the region is an unpleasant reminder of the need to review the existing theories and develop hypotheses that accept the fact that the social structures of Sub-Saharan Africa do not comprise 'traditional' and 'modern' sectors as polar opposites but as interpenetrating and integrated through complex social, economic and political factors, reflecting the interplay of forces, both traditional and modern, which make up contemporary African societies. Pluralism, cultural conservatism and resilience make these societies more complex and diverse than those in the other parts of the world. Studies of Africa conducted on premises derived from the study of other societies have not yielded useful results to provide frameworks for efficient management of development programs including those of family planning and health. The abandonment of anthropological and, to some extent, sociological research methodologies in the 1960s in favour of sample survey methods gave rise to ill-founded optimism about demand for these services. The data on which the reports submitted to governments were based did not reflect the essential features of the social system including different types of household arrangements, and people's real attitudes and reproductive behaviour. In fact, the belief that family planning was in great demand has not been supported by the performance of the existing family planning program in Sub-Saharan Africa (Olusanya, 1985; UN, ECA, 1985; Freedman, 1987; Warwick, 1988; Azefor, 1988; Gaisie, 1988).

This brings us to the question of the appropriateness of the existing techniques for collecting demographic data in the region. The use of paradigms developed in other societies has not yielded reliable data on African social realities. A combination of demographic and anthropological methods for collecting better demographic data is being seen as much more appropriate by demographers, anthropologists, and sociologists (Caldwell, 1988; Randall, 1988; Knodel *et al.*, 1988). Anthropologists and sociologists have

suggested that since each society is embedded in a historical process determined primarily by changes in the material conditions, and since internal factors are the major determinants of social and economic development, socio-historical and actor-oriented approaches may be more useful in studying social groups 'situated analytically within a region rather than merely a local community context'. They believe that such an approach will

integrate both micro and macro levels of analysis, and ... give equal attention to horizontal and vertical patterns of cooperation and control. It also recognizes the importance of explaining the variations in response to similar types of macro factor and of identifying the flexibilities in the pattern of pre-existing relationships and values (Long, 1977: 189-190; see also Hyden, 1983).

Long believes that such an approach can lead to more meaningful treatment of the interplay of local and national development processes. In addition, it enables one to explain the persistence of certain traditional institutions as well as the emergence of new patterns of differentiation and social inequality ... adopting ... a simple modernization of dependency approach to the problem (Long, 1977:190).

Finally, transcending disciplinary boundaries and sidestepping the pressures of day-to-day administration may provide the requisite intellectual capacity to understand the essential features of the extant social structures of African societies, mechanisms, proclivities, and directions of change in the society: an approach which will enable us to identify those measures that may be appropriate for solving social problems and thereby promoting socio-economic development including the establishment and organization of viable health and family planning programs in the region.

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## Chapter 36

# Socio-cultural determinants of health in rural Gujarat: results from a longitudinal study

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### Introduction

It is well recognized that while economic factors determine to a great extent a household's access to modern health facilities, cultural and behavioural factors play an important role in the utilization of available health services. Unfortunately, only a few Indian studies have explored the cultural and behavioural determinants of health. Our longitudinal study in two rural areas and an urban slum in Gujarat offered a good opportunity to explore this area with reference to children and mothers.

The first part of this paper reports on the results of growth monitoring of nearly 1,200 children up to five years of age in one rural area (in Kachch district) for the period October 1985-December 1988.<sup>1</sup> The next section explores the views of selected mothers during group discussions focused on the growth of children.

Initially it was hoped that even modest health interventions (discussed below) would have a positive effect on children's physical growth and would reduce the differences in the nutritional status of children belonging to different class-caste groups. The data analysed earlier by sex and age alone for the period October 1985-December 1987 had indicated negligible sex differences in the growth pattern but rather strong age differences (see Visaria and Anandjiwala, 1988). The growth of children began to falter after six months of age and up to the end of the second year of life among both boys and girls. The question which remained unexplored was: would the same pattern hold for different socio-economic groups within this population? An effort is now made to go beyond the broad perspective provided by the earlier analysis of the growth data for 27 months. The present analysis covers 39 months and focuses on caste differentials in the dynamics of nutritional status and the caste-linked behavioural and cultural processes.

It is recognized that caste as a category does not exist in isolation; interwoven and closely associated with it are economic and other social correlates such as income, land holding, occupation and education. In the appendix are presented some preliminary findings of a multivariate analysis to assess the independent contribution of selected socio-economic variables on monthly weight gain of children.<sup>2</sup>

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<sup>1</sup> This project was started in collaboration with a voluntary agency, Sri Sangh. The VA is located in one of the 10 villages and is engaged in multifaceted development work in the area, with a strong health component. It is led by two health professionals attached to a District Panchayat Hospital.

<sup>2</sup> According to our preliminary analysis of the data on the role of various factors such as land holding, father's and mother's occupation, father's and mother's education parity and caste, only caste had a strong correlation with weight gain. Mother's and father's education had a weak but positive correlation with weight gain.



## Background

To improve the level and quality of infant and child survival, an action research program was initiated by the Gujarat Institute of Area Planning, Ahmedabad (India), in a few areas in Gujarat in late 1984. A few interventions, selected on the basis of their simplicity in administration, reputed effectiveness, low cost and presumed easy acceptability at the community level, have been gradually introduced in the population. The interventions introduced in a project area of ten villages in Kachch district have been: (a) immunization through mass campaigns against five vaccine-preventable diseases (diphtheria, pertussis, tetanus, measles and poliomyelitis), (b) administration of Vitamin A to all children every six months, (c) growth monitoring of children under five years of age through monthly weighing and quarterly height measurement, used as tools to assess the nutritional status, (d) management of diarrhoea through ORS, both by supplying the ORT packages and by education of mothers in managing diarrhoea, and (e) provision of antenatal care: measurement of haemoglobin, weight, and fundus height, and giving iron and folic acid tablets and tetanus toxoid injections to the pregnant women. The program is regularly monitored with the help of four health workers stationed in the area. All the vital events are carefully registered. This has helped us to understand some of the socio-cultural constraints or reasons for non-acceptance of certain measures and the attitudes of families to health issues in general.

## The project area

Our monthly growth monitoring of children was preceded by a benchmark survey carried out during June-July 1985 in the entire project area, covering about 3,400 households with a population of 165,000, in 24 contiguous villages. The project area is divided into an experimental area consisting of ten villages where various health interventions have been introduced in a phased manner, and a control area of 14 villages, where no direct health interventions are introduced but where, besides the benchmark survey, two additional surveys have been conducted so far.

The region is quite heterogeneous in terms of caste composition of the population. It also has a tradition of out-migration to Bombay and other urban areas and even to countries abroad, to East Africa in earlier decades and to the Gulf countries in recent times. This is reflected in the sex ratio of the population; in rural areas of the district females have outnumbered males for several decades now.

Kachch is a drought-prone district with an average yearly rainfall of around 30 cm, surrounded by the Rann of Kachch on two sides. The population living near the coastline, a relatively less dry area, depends for its livelihood, to a considerable extent, on either remittances or relief works organized by the government whenever scarcity is declared.

## Data base

On the basis of the 1985 baseline survey, all the children under five years of age were listed. Considerable effort went into obtaining ages of children as accurately as possible. Ages were checked and verified when weighing of children began. The health workers were trained in the procedures of weighing the children, reading the weight, managing the child and recording the weight in a register as well as on the growth chart, a copy of which is retained by the mother. A second copy of the growth chart is kept by the health worker.

The caste composition of the experimental region is represented in Table 1.<sup>3</sup> The dominant caste groups in this region are Rajputs or Kshatriya, Ayars or Ahirs (who are basically agriculturalists), Harijans or Scheduled Caste, and Muslims. The upper castes consist mostly of Jains who were an important community in the region until a couple of decades ago. However, their number has been declining over the years through out-migration; those who are left behind are elderly, widows and return migrants. This explains their small average household size of 3.2, sex ratio of 818 males per 1,000 females and an average of 0.2 children of less than five years of age per household.

**Table 1**  
Basic population statistics of ten villages of project area in Kachch, Gujarat, 1985

Caste	No. of HH	Population			No. children <5	Derived statistics			
		Males	Females	All		Av. HH size	Sex ratio	%	Av. no. children per HH
Upper castes	243	354	433	787	55	3.2	818	20.0	0.23
Rajput	200	612	565	1,177	269	5.9	1,083	16.5	1.35
Ayar	356	919	891	1,810	373	5.1	1,031	29.2	1.05
Lower castes	99	290	232	522	90	5.3	1,250	8.1	0.91
Scheduled Castes	127	360	337	697	157	5.5	1,071	10.4	1.24
Scheduled Tribes	73	190	170	360	84	4.9	1,118	6.0	1.15
Muslim	119	322	317	639	164	5.4	1,016	9.8	1.45
All	1,217	3,047	2,945	5,992	1,192	4.9	1,035	100.0	0.98

Notes: Upper castes include Brahmins, Jains, Patels and others recognized as such.  
Lower castes include all Hindu artisan groups.

There is less out-migration among the Rajputs, Harijans and Muslims of the region. Rajputs, once a ruler community of this former princely state, are land owners; the well-to-do among them get their land tilled by hired workers, many of them Harijans. Harijans of Kachch also own land, but the quality of their land, given to them by the government under a scheme to provide land to the landless poor, is indifferent, if not bad, with no irrigation facilities. Muslims in our project area are traditionally artisans, although by now only a small number of households are engaged in activities like pottery; the rest have taken to cultivation.

The Ayar community, on the other hand, has experienced out-migration of males to the Gulf countries in the past decade or so. The flow has slowed down in recent years and the process of return migration has begun.

The Scheduled Tribes consist of a few nomadic groups known as Paradhi, Koli and Datania, who live in very temporary dwellings on the outskirts of the villages. It was difficult

<sup>3</sup> Since the 1931 Census, the available caste data have been limited to the Scheduled Castes (SCs) and Scheduled Tribes (STs). According to the 1981 Census of India, SCs and STs formed 10.6 and 6.0 per cent respectively of the total population of Kachch.



for us to weigh their children regularly for various reasons. The entire households move out in certain seasons. Reluctance to have the children weighed is also quite strong among them.

### Growth pattern of children

In order to compare the growth pattern of project area children with that of a reference population, the longitudinal data have been treated as cross-sectional data for each caste, age and sex group.<sup>4</sup> Such an approach has the advantage of utilizing all those data and increasing the number of observations for each group, so that the standard error is reduced; however, the successive observations for each child are not independent of its previous weights.

**Table 2**

**Number of weight observations of the children of the project population by age, sex and caste, October 1985 - December 1988**

Caste	Number of children	Number of observations in age group( months)					Total
		0-5	6-11	12-23	24-35	36-59	
<b>Boys:</b>							
Upper castes	27	26	48	80	49	136	339
Rajput	137	211	249	483	516	930	2,389
Ayar	197	252	350	715	762	1,344	3,423
Lower castes	43	41	68	133	202	428	872
Scheduled Castes	77	105	124	273	329	536	1,367
Scheduled Tribes	36	31	41	66	74	77	289
Muslim	80	79	104	256	323	590	1,352
All	597	745	984	2,006	2,255	4,041	10,031
<b>Girls:</b>							
Upper castes	28	21	43	76	110	181	431
Rajput	132	169	248	564	604	959	2,544
Ayar	176	282	357	620	549	1,120	2,928
Lower castes	47	71	79	172	113	268	703
Scheduled Castes	80	121	124	216	202	410	1,073
Scheduled Tribes	48	51	51	105	69	115	431
Muslim	84	120	173	339	362	564	1,558
All	595	835	1,075	2,092	2,009	3,657	9,668

The number of weight observations by age and sex for each caste group is shown in Table 2, whereas Table 3 shows the percentage of weight observations which fall below three standard deviations from the NCHS median curve, suggesting a state of severe malnutrition.

<sup>4</sup> The NCHS (National Center for Health Statistics, USA) data, which are recommended for international comparisons, were used as a standard for comparison of the project area children. The various anthropometric measures of the NCHS study are based on a sufficiently large sample of children with a heterogeneous ethnic background and socio-economic status.

**Table 3**  
**Percentage of weight observations of children of the project population: three standard deviations from the median curve of the NCHS reference population, by age, sex and caste**

Caste	Per cent below 3 SD from the NCHS median curve					Total
	0-5	6-11	12-23	24-35	36-59	
<b>Boys:</b>						
Upper castes	3.8	31.2	27.5	6.1	20.6	20.3
Rajput	5.2	28.9	42.9	38.8	15.4	26.7
Ayar	5.2	29.4	46.7	33.1	17.3	30.5
Lower castes	2.4	22.1	31.5	29.7	13.8	20.3
Scheduled Castes	2.9	35.5	56.4	47.7	34.7	39.8
Scheduled Tribes	0.0	31.7	39.4	44.6	33.8	33.9
Muslim	5.1	19.2	41.0	43.3	22.7	29.8
All	5.0	28.7	44.4	37.5	20.0	28.5
<b>Girls:</b>						
Upper castes	0.0	0.0	7.9	7.3	24.9	13.7
Rajput	17.2	20.6	36.2	45.0	30.9	33.5
Ayar	9.6	28.3	47.4	43.4	24.6	32.0
Lower castes	14.1	30.4	38.4	29.2	20.9	26.9
Scheduled Castes	14.9	41.1	72.7	54.5	38.6	46.0
Scheduled Tribes	5.9	23.5	54.3	62.3	45.8	43.2
Muslim	19.2	34.1	43.4	27.9	16.3	27.1
All	13.2	27.7	44.5	40.1	27.2	32.5

It is evident from this table that up to six months of age, for the population as a whole, only 5 and 13 per cent of the weight observations of boys and girls, respectively, fell below three standard deviations from the NCHS median weights. The differences between boys and girls in the various caste groups were sizable, but in no case did the percentage exceed 20. After the age of six months, the growth began to falter rather rapidly and the process continued up to the end of the second year of life, among both boys and girls. The inter-caste differences persisted in all age groups, with the high-caste children at the top and the Harijan children at the bottom in terms of their nutritional status.

The caste-related disparities are far more glaring among 12 to 23-month-old girls than among boys in the same age group. Nearly a third of the weight observations of Harijan girls in this age group fell below three standard deviations from the median curve of the NCHS reference and suggested a continuous state of severe malnutrition. The girls of the Scheduled Tribes were also in a disadvantaged position. The recovery of the subsequent age group among these two groups was slower than among other caste groups. The percentage of malnourished girls among Rajputs is also higher than the average in all age groups except 6-11 months. Harijan and Scheduled Tribe boys do better than their sisters at almost every age, but they are disadvantaged compared to the boys of other caste groups.

### Incremental growth

The longitudinal data on weights, available for each child, have been used also to calculate monthly increments in weight in order to assess the 'dynamics of concurrent nutritional



status'. Inadequate weight gain or actual loss provides an early warning of the risk even when the weight does not fall below the norm.

**Table 4:**

**Average weight gain in grams/month during the first five years of life in the project area compared with the nchs reference population, by age, sex and caste**

Caste	Age in months						0-59
	0-5	6-11	12-23	24-35	36-47	48-59	
<b>Boys:</b>							
Upper castes	495	162	114	146	111	151	10,206
Rajput	544	179	121	118	113	110	9,882
Ayar	583	166	137	124	116	117	10,422
Lower castes	500	224	148	119	141	118	10,656
Scheduled Castes	620	84	166	108	100	99	9,900
Scheduled Tribes	430	199	147	147	136	166	10,926
Muslim	567	159	114	135	114	123	10,188
All	561	171	135	123	116	117	10,284
NCHS reference	750	417	217	175	175	167	15,810
<b>Girls:</b>							
Upper castes	508	184	142	187	88	127	10,680
Rajput	522	189	124	135	108	126	10,182
Ayar	518	175	124	151	137	1118	10,518
Lower castes	524	177	132	113	138	145	10,542
Scheduled Castes	519	110	134	140	105	129	9,870
Scheduled Tribes	413	213	135	165	85	83	9,396
Muslim	477	168	148	126	113	105	9,774
All	506	172	131	141	117	121	10,188
NCHS reference	667	384	200	167	158	142	14,310

The serial measures of weight available from October 1985 to December 1988, nearly 39 months, provide sufficient observations to make valid estimates for all age groups. These data are presented in Tables 4 and 5 along with corresponding estimates for the NCHS reference population. It is evident that even during the first six months of life, the monthly weight gain of boys and girls among all the caste groups in our project area was less than that in the NCHS population. The Scheduled Tribe children of both sexes fared the worst. Interestingly enough, the shortfall was the smallest among Harijan boys. However, the gap widened with age.

From 6 to 11 months of age, as against around 400 grams of monthly weight gain in the reference population (417 in the case of boys and 384 in the case of girls), children in our project area gained between 224 grams (lower caste boys) and 84 grams (Harijan boys), which is barely 20 per cent of the weight gain in the NCHS reference population. The deficit for all the other groups ranged between 45 and 60 per cent. After the age of one year, the situation improved a little among all, more so among the SCs and STs. It is likely, however, that selective loss of high-risk children through death has contributed to improving the averages of those who survive. In the post-neonatal period, the majority of the children who died (from diarrhoea, wasting and respiratory ailments) in our project area were

malnourished and their average weight gain was much lower than that of the reference population.<sup>5</sup>

**Table 5**  
**Weight gain of project area children as percentage of that in the NCHS reference population, by age, sex and caste**

Caste	Age in months						
	0-5	6-11	12-23	24-35	36-47	48-59	0-59
Boys:							
Upper castes	66.0	38.8	52.5	83.4	63.4	90.4	64.6
Rajput	72.5	42.9	55.8	67.4	64.6	65.9	62.5
Ayar	78.1	39.8	63.1	70.9	66.3	70.0	65.9
Lower castes	66.7	53.7	68.2	68.0	80.6	70.6	67.4
Scheduled Castes	82.7	20.1	76.5	61.7	57.1	59.3	62.6
Scheduled Tribes	57.3	47.7	67.7	84.0	77.7	99.4	69.1
Muslim	75.6	38.1	52.5	77.1	65.1	73.7	64.4
All	74.8	41.0	62.2	70.3	66.3	70.1	65.0
Girls:							
Upper castes	76.2	47.9	71.0	112.0	55.7	89.4	74.6
Rajput	78.3	49.2	62.0	80.8	68.4	88.7	71.1
Ayar	77.7	45.6	62.0	90.4	86.7	83.1	73.5
Lower castes	78.6	46.1	66.0	67.7	87.3	102.1	73.7
Scheduled Castes	77.8	28.6	67.0	83.8	66.5	90.8	69.0
Scheduled Tribes	61.9	55.5	67.5	98.8	53.8	58.5	65.7
Muslim	71.5	43.8	74.0	75.4	71.5	73.9	68.3
All	75.9	44.8	65.5	84.4	74.1	85.2	71.2

The factors underlying the observed pattern appear quite clear. Up to about six months of age when children are on breastmilk, their nutritional requirements are met reasonably adequately and their average growth is quite satisfactory. The situation changes in the subsequent months when energy derived from breastmilk is not adequate for growth. Weight gain begins to falter at this stage. Thus, the period between 6 and 23 months of age appears the most vulnerable phase in a child's life in all caste groups; the worst sufferers are the children of SCs and STs. While the data indicate some 'catching up' at later ages, the deficit is never wiped out. Overall, our project area girls and boys weigh about 30 and 35 per cent less than the average NCHS population girls and boys respectively.

**Behavioural practices associated with child rearing**

In order to understand mothers' own perceptions of the well-being of their children, the breastfeeding practices and management of illnesses, we conducted a series of group discussions with some mothers of the young children whose growth is being monitored. Each group consisted of between six and eight mothers belonging to the same caste group.

<sup>5</sup> Some preliminary analysis of infant and childhood mortality which occurred during 1986-1989 suggests a preponderance of girls among them. Their monthly weight data available up to the time of their death also suggest that several months before their death their weight fell below the third percentile of the NCHS reference curve, and also there was weight loss in successive months among these children.



A profile of the women involved in discussions is presented in Table 6. A majority of the women were illiterate.

**Table 6**

**Profile of women involved in group discussions**

Caste	No. of women	Literate No	Literate Yes	housework	Activity farm/ enterprise	labour	Selection criterion
1. Ayar I	8	7	1 (7 std)	2	2	2	All had children below 3 SD of NCHS median curve
2. Ayar II	6	6	-	3	3	-	All had children above 3SD of NCHS median curve
3. Harijan I	6	6	-	1	-	5	From a village with District Panchayat Hospital
4. Harijan II	6	6	-	2	-	4	From a village where health worker is stationed
5. Rajput	7	7	-	7	-	-	From a majority Rajput village; quite poor
6. Muslim	7	6	1 (4 std)	5	1	1	From a village with District Panchayat Hospital

Note: Group discussions were planned, but could not be held, with better-off Rajputs from a village with District Panchayat Hospital and with Muslims from a village where modern health care is not available within the village. Both the groups refused to co-operate, partly because of intra-caste conflicts.

The issues discussed with the mothers can broadly be grouped into: (a) practices related to prelacteal feeding, breastfeeding and weaning; (b) perception of illnesses of children and (c) management of illnesses.

**Prelacteal feeding and breastfeeding**

The cultural practice in this region is to discard colostrum. Nearly universal practices are the feeding of *jaggery* to a new born infant by allowing the infant to lick it from a finger; and of goat's milk, sometimes diluted with water, for 24-48 hours after birth. Once breastfeeding

begins, giving of *jaggery* and goat's milk is stopped completely. Women of all communities totally breastfeed their children at least up to six months of age.<sup>6</sup>

Practically all mothers reported that they breastfed their children on demand. In their words, feeding infants was one of their pastimes during the day. Ayar women who worked on their own farms reported that they took their infants to the field. The older siblings accompanied their mothers to look after the younger ones. Mothers were thus able to feed the children whenever they cried.

Harijan women who worked as labourers on others' farms indicated that they generally left their young ones in the care of older children or their mothers-in-law. Sometimes, an 18 to 24-month-old child was left with nobody in particular. It was vaguely looked after by other neighbourhood families. Among such children, bottle-feeding is practised to a great extent. An old discarded brown or green medicine bottle of about 50-100 millilitres is fitted with a nipple and used to feed infants and children. Such children also receive plain water, sometimes with a little sugar added to it, to pacify their hunger and to stop their crying.<sup>7</sup> Although the open discussion did not throw any light on sex differentials in breastfeeding, evidence from other sources for the same population does suggest that the Harijan women resume work sooner after the birth of girls than after the birth of boys; they thus breastfeed the boys on demand for a longer period.

### Weaning practices

Most mothers seem aware that after six months of age or after a child learns to sit, breastmilk is not sufficient; a child is at this stage given biscuits or other chewable foods. There is no practice of spoon-feeding the child.

The Ayar community has a ceremony associated with the child's first solid feed. The Ayar mothers reported that they fed the small children for a few months after they learnt to sit; once the children learnt to hold food and feed themselves, they were allowed to eat on their own.

The Muslim and Rajput mothers reported that they generally did not feed the children with their own hands even though they were around the children at home. They put a biscuit or a piece of *roti* (bread) in the child's hand after it could sit. The child might lick it, eat a bit, drop it, pick it up again and chew on it; the quantity that went into the child's stomach was difficult to estimate. However, this did not appear to be the concern of mothers at all; they viewed the whole process as a part of learning to eat and pacifying the child or preventing it from crying.

Women of all castes reported that a child was completely weaned only when the mother found out that she was pregnant again. In fact, most groups discussed at length how difficult it was to wean a child but how it had to be done in the event of pregnancy because a pregnant mother's milk is harmful for the child.

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<sup>6</sup> Until recently, the Aya (attendant) and other lower category personnel attached to the District Panchayat Hospital in one of our project villages, who attended to deliveries, recommended feeding goat's milk for 24-48 hours after birth and before initiating breastfeeding.

<sup>7</sup> Our interventions have some education component built into them, but we have made very little effort to change the behaviour of mothers related to child rearing. We have often pointed out to the mothers that bottlefeeding is safe only if the bottles are thoroughly cleaned and boiled, and that feeding milk from a bowl is a lot safer.



### Onset of illnesses among children

Almost all mothers reported that after about six months of age, children began to fall ill quite regularly; the common ailments were diarrhoeal diseases, respiratory ailments, fever and skin problems. Harijan mothers reported that seizure among neonates was a fairly widespread health problem; no other group seemed concerned about this and no specific cause was known to the parents.

Several of the childhood ailments are associated with teething. It is believed that the first few teeth lead to a variety of ailments. Later on the problems subside and the eruption of molars poses few problems. There is a universal belief that ailments like diarrhoea are unavoidable and every child must go through several episodes of diarrhoea.

The reported causes of diarrhoea were teething, breastfeeding the child immediately after working in the hot sun, and continuing breastfeeding even after having become pregnant.

Respiratory ailments are believed to be associated with cold foods such as sugar, buttermilk (but not yoghurt), citrus fruits and cold water.

### Management of illnesses

Sickness among infants and young children was accepted philosophically as something unavoidable; however, different illnesses were managed in different ways.

In an illness which was not very specific, people propitiated supernatural forces. In fact, when a child cried continuously without any specific reason and refused to suckle, mothers often called or visited an exorcist and got amulets or black threads for the child, and also performed certain rites to drive away the evil spirits. Almost all mothers in our group discussions, regardless of caste, had performed some rites to drive away evil spirits. Many women emphatically claimed that their children felt much better after the rites were performed, and that they stopped crying.

Harijans resorted to branding their young infants to control seizures in neonates.<sup>8</sup> Mothers described at length the epicentres of seizures, parts of the body where branding had to be done and the material used for branding.

The branded part of the body had to become infected for the procedure to be effective; otherwise the child had to be branded again. It was also reported that one of the local medical practitioners clearly advised the parents to resort to their own system in the event of seizure, because he had no cure for it.

Another practice prevalent particularly among Rajputs was giving opium to small infants. Opium was generally mixed with breastmilk and given to infants in the evening when they started crying. Two women even reported that a few children had become opium addicts. The practice of giving opium continued until the child was 18-24 months old; it was reported that husbands did not approve of crying babies, especially at night, and therefore mothers had to pacify them by doping.

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<sup>8</sup> Branding is also done on the back of the neck on older children during a severe attack of sore throat, on the stomach for complaints of vague stomach pains and on the forehead among children who appear retarded. Such practices are not infrequent and persons who specialize in different forms of branding are known to most people.

The young Rajput women also reported that while they regarded boys and girls as equal, their mothers-in-law were partial to boys and tended to ignore girls.<sup>9</sup>

Mothers and their mothers-in-law knew a wide variety of home remedies for a majority of illnesses. If the children did not respond to these remedies after two or three days, depending upon the illness, they were taken to medical practitioners. Going from one 'doctor' to another in search of better and quick cures was quite common. Injections were viewed as providing quick relief.

Childhood diarrhoea was not generally viewed as leading to rapid deterioration in health. Oddly enough, after a year or more of giving ORT packages, which seemed to be in demand, mothers still believed that children should not be given more fluids during diarrhoea. Several of them said that they did not stop breastfeeding and did not deny fluids to children; however, fluid was given only if the child asked for it. Some suggested that they gave ORT according to the instructions and demonstration by our health workers; however, we had an uneasy feeling that they were not convinced of the need to give more fluid during diarrhoea because the child would pass it all out. The anti-diarrhoeal medicines given by the village health practitioners, which help in the solidification of stools, or help stop diarrhoea, were, however, trusted. Similarly women knew and used several home remedies of unknown efficacy.

### **Interrelationships of different facets of behaviour**

Our description of reported cultural practices and behavioural aspects of feeding and managing illnesses among children by different communities can be related to the nutritional status derived from the monthly weight data. It is evident that the intake of food of Harijan children after six months of age does not keep pace with their growing needs. This is partly because mothers go off to work leaving the young ones to be cared by other household members, and partly because there is no clear understanding of the needs of children and no practice of systematic supplementary feeding of children except by giving them milk. This is very well reflected in their monthly weight data as well as in the incremental growth data. In one predominantly Ayar village we held separate discussions with mothers of well-nourished children and others whose children were malnourished. While we discerned no differences in feeding practices or managing illnesses between the two groups, a significant difference was the longer interval between two living children among the well-nourished group than among the malnourished. It was explained that the husbands of three of the six women were currently in the Gulf countries and husbands of the two others had returned from abroad only recently. The overseas earnings of the husbands were probably instrumental in permitting these women either to stay at home or to limit their work to their own farms. While the longer interval between children was a result of the separation of spouses, it enabled the mothers to take better care of their children, partly through prolonged breastfeeding, which would have been discontinued in the event of another pregnancy. Of course, it would also prolong the duration of lactation amenorrhoea. Overall, Ayar boys and girls fared better than others in the project area.

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<sup>9</sup> During the discussion with the Rajput women, a few mothers-in-law also joined initially. However, they left after a while, when they felt assured that the discussion was not going to 'spoil' the daughters-in-law.



The Rajput mothers had very little say in rearing their own children. Although the women were completely housebound (but some of them spun at home), they were almost entirely at the mercy of their mothers-in-law. We were also told that the sick children were generally taken to the doctor by their grandmothers, and not by mothers.

It may be added that continuous weighing of children has inculcated, in a large number of mothers, an awareness of how their children are faring over time and how their individual growth curve compares with two or three other curves on the growth card. Some of them even remember the previous weight of their children and volunteer to the health workers information about the illnesses suffered by the children which might explain the weight loss or slow weight gain. While we take this as positive behaviour, it must be admitted that the frequent episodes of a variety of illnesses — several of them infectious — are unavoidable in the environment in which the children grow up. Also the oral-faecal contamination link is not understood at all, just as the germ theory means very little to them, and is hardly accepted even when explained. In this environment branding and other practices continue to be widespread.

Non-acceptance of immunization for children subsequent to our campaigns also appears difficult to comprehend. As indicated earlier, there was a very good response to the two mass immunization campaigns conducted during 1987-1988 (Bhargava, 1988; Visaria, 1988). Even the backlog was largely cleared. It was hoped at that time that the mothers would subsequently volunteer to seek immunization for their children born after the second campaign. On this presumption, we had decided not to conduct a third mass campaign but had requested our health workers to encourage parents to use the other facilities like the local ANMs, District Panchayat Hospital, PHC or other public hospitals. However, at the end of March 1989, out of 150 eligible children in seven villages, including those partly protected by us during the second campaign, only 14, or less than 10 per cent, had received all the vaccinations in required doses.<sup>10</sup> In two of the seven villages, a few cases of measles were reported during March-April 1989, after an interval of two years.

This experience raises several questions regarding health-seeking behaviour of parents. Is the concept of preventive care difficult to grasp for people who are used primarily to seeking only curative care? While the Indian system of medicine has always placed a lot of emphasis on preventive and promotive care, modern preventive care through immunization is not a part of it. Perhaps parents do not like to take time off from work to take a healthy child for vaccination. Also, centuries of experience have perhaps induced a belief that diseases such as measles are an unavoidable part of the growing-up process of all children. Besides, health care available through the governmental sector is so uninviting, irregular and devoid of empathy that people avoid it as long as possible. Of course, the actual behaviour probably reflects all these and many other factors.

The overall situation is quite puzzling. There seems to be a fatalistic and almost unquestioning acceptance of childhood illnesses and even of infant and child mortality among a major segment of the population. This is not negated by the fact that a much larger proportion of infants and children now survive than in earlier decades. It is unclear to what extent the declines in infant and childhood mortality since Independence have been perceived by a majority of the people. This, as well as the coexistence of an almost universal

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<sup>10</sup> The local ANMs have apparently become lax and expect us to vaccinate the children and provide them with the names for their record.

acceptance of modern medicine with faith in supernatural influences on human health and ritualistic exorcism or rather cruel branding, merits an interdisciplinary investigation under the proposed health transition research. The result may shake our faith in the efficacy of education for influencing mass behaviour but an understanding of the complex reality will not only enhance our knowledge but also facilitate formulation of appropriate programs and policies.

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## Appendix

### Preliminary results of an MCA analysis of weight gain

A multiple classification analysis (MCA) has been attempted to estimate the extent to which selected variables explain the variance in monthly weight gain of boys and girls of specified ages. These variables have been: number of children less than five years of age in the family; father's and mother's education; father's and mother's activity and caste.<sup>11</sup> The results are presented in the Appendix Table. The MCA is particularly suitable for categorical data. It provides unadjusted average deviations from the average monthly weight gain for a specified sex and age group. Adjusted deviations are also estimated for each of the variables after controlling for the effects of the other five variables. The results presented here are preliminary and will be analysed further. We particularly need to identify mothers and fathers for whom education or activity data have not been recorded in the computerized data and to check whether they were illiterate or non-workers.

Briefly, it appears that the index boys who are the only under-five children in the family do better in terms of weight gain than those who have other siblings at home. This holds true at every age. The relationship with regard to girls is not so clear.

<sup>11</sup> As a part of our mass immunization campaigns, we had provided DPT vaccination, oral polio and measles vaccine to the majority of the children. Therefore, these have not been considered as differentiating variables.



Up to the end of the second year, the father's education appears positively related to the weight gain of both boys and girls. At older ages, the relationship is weak. Surprisingly, mother's education does not have a clear-cut relationship with weight gain. It is likely that the father's education works through income effects; unfortunately we do not have income data.

In all age groups, children of self-employed mothers tend to gain more weight than those of housebound mothers or of casual workers.





Appendix table: continued

Variables	24-35 months			36-47 months			48-59 months		
	Boys		Girls	Boys		Girls	Boys		Girls
	N	Deviation	Unadj.Adj.	N	Deviation	Unadj.Adj.	N	Deviation	Unadj.Adj.
Grand mean	123		141	116		117	117		121
No. of children under 5 in family:									
1	37	1	-7	34	18	11	40	18	17
2	101	3	3	96	-4	-4	83	-4	-5
3	68	-5	-1	59	-4	N	49	-11	-7
Father's education:									
NK	27	1	2	20	8	3	18	-17	-6
Illiterate	92	9	9	93	3	2	85	1	2
Up to primary	42	-6	-5	33	-2	-4	25	-8	-12
Above primary	45	-15	-16	43	-9	-2	50	9	5
Mother's education:									
NK	26	3	-10	19	4	5	14	-19	-7
Illiterate	155	-2	-2	142	1	1	134	N	N
Up to primary	11	14	23	15	-17	-13	11	16	7
Above primary	14	1	22	13	N	-9	19	8	-2
Mother's activity:									
NK	14	35	53	4	15	-26	3	26	48
Labourer	26	-4	-17	27	17	15	27	5	10
Self-employed	26	1	4	27	12	12	20	4	2
Household work	140	-3	-3	131	-6	-5	128	-2	-3
Father's activity:									
NK	15	6	-31	8	32	35	5	-26	-46
Labourer	71	6	12	72	-5	-6	67	-5	-3
Self-employed	75	-7	-7	58	-4	-5	55	5	3
Animal husbandry	9	7	-1	11	33	33	10	-15	-9
Regular job	16	-9	-4	18	2	13	23	8	8
Working abroad	20	3	5	22	-3	-8	18	9	10
Caste:									
Harijan	30	-14	-15	22	-17	-18	22	-18	-16
Scheduled tribe	5	24	18	5	20	12	5	49	47
Lower castes	8	-27	-38	8	15	13	8	18	-7
Muslim	31	13	15	24	-2	2	24	6	16
Ayar	82	3	6	82	5	1	67	-2	-3
Rajput	44	-5	-9	44	-3	4	44	-7	-8
Other high castes	6	23	25	7	-6	-13	8	33	27
R[2]		0.11	0.14		0.10	0.14		0.11	0.17

## Chapter 37

# The role of cultural bereavement in health transition in a multicultural society

Maurice Eisenbruch

### Introduction

There has been a growing recognition of the relationship between culture and health. Social scientists suspect that rapid social change as a result of immigration can have adverse effects on health (Erikson, 1976; Marris, 1986; Eisenbruch, 1988a; Fisher, 1988). This process is called health transition and mental health forms a part of it.

Anthropologists such as Johansson have suggested that social violence or an upsurge in unwanted pregnancies may indicate difficulties in this transition. Eisenbruch argues that in a multicultural society, cultural bereavement is another manifestation of the transition that is closer to the source: that cultural bereavement explains a connection between disruptions at several levels: 'health', 'interpersonal', 'social', and 'community relations'.

This study of health transition aims to promote awareness of the diverse cultures in Australian society; to educate mainstream health workers about the many methods of healing used in ethnic communities; to eliminate prejudices of health workers against 'foreign' concepts of health; and to enable Australians from all ethnic backgrounds to participate in mainstream health services by bringing their cultural traditions of health to them.

Part of this study concerns traditional medicine, both its importance to immigrants and its potential for enriching the health system. Australians have always looked outside the mainstream health systems to alternative methods of healing, which immigrants regard as standard practices. Acupuncture, for example, a traditional Chinese method of treatment, is used in many areas of medicine in Australia.

Members of ethnic communities often have more confidence in their healers than in Western practitioners (WHO, 1983), and should not be discouraged from maintaining their traditional beliefs and practices. Other Australians, including those in the mainstream health-care system, should be encouraged to take greater interest in learning what is healthy and unhealthy about the former patterns of living and beliefs of immigrants.

### Making sense of distress and sickness

Immigrants bring to their new country belief systems that are shaped by culture, and it is not unusual for a gap to develop between patients and professionals in explaining the causes of sickness. Studies in clinically applied medical anthropology use the concept of explanatory models of illness (Katon and Kleinman, 1981; Blumhagen, 1981; Hielscher and Sommerfield, 1985; Stein, 1986; Helman, 1986) and the cultural basis of help-seeking behaviour (Keefe, 1982; Blakemore, 1983). Western diagnostic systems and treatments that ignore a patient's understanding of his or her illness are associated with lack of compliance and high costs (Kleinman, 1980).

Even when immigrants are settling in well, they may be affected by subtle forms of cultural bereavement that can have an effect long after they arrive. A central question is



how stress and distress are culturally shaped, how immigrants make sense of their emotional reactions to resettlement and to illness. There are already well-documented differences of physical disease profiles among immigrants in Australia (Hopkins *et al.*, 1980; Dunt, 1982; Armstrong and McMichael, 1984; McMichael, 1985), but there are few local studies on the cultural basis of maladjustment. While those in the health care system know so little about the cultural construction of stress, distress and illness, they will be limited in their ability to diagnose and treat illness.

Clinical work with immigrants is often based on ethnocentric interpretations of difficulties in adjustment, but poor mental health may be shaped by cultural constructs which give meaning to the patient's post-immigration experiences and which in turn shape any resultant clinical problems. Psychological disorders, for example, can be present with somatic symptoms. In many societies health disorders are put down to natural and supernatural causes (Landy, 1983). Health professionals in a multicultural society need anthropological information to care effectively for their ethnic patients.

### Reactions to loss of society and culture

In 1983 I was called upon by an Indo-Chinese mental health service in Boston to help Cambodian refugee children in crisis. The Cambodians proved to be appropriate for a study of the mental health impact of uprooting because, like all refugee children, they had suffered a traumatic loss of society and culture and were obliged to adapt rapidly to a new country; they could also be seen as representing other displaced people. My fieldwork and community health research with Southeast Asian refugee youths in England, the United States and Australia suggested that adjustment is worsened by lack of access to culturally familiar practices. Beliefs about the causes of misfortune and illness were often based on Buddhist and folk systems seldom recognized by Westerners involved with refugees. The well-being of refugees was improved when they were allowed to validate their beliefs through culturally appropriate rituals and behaviour (Eisenbruch, 1988b).

### Method

After a year of clinical work with Cambodian refugees and several months of participant observation, a theory of 'cultural bereavement' and a tool to measure it were developed. A semi-structured interview was composed for clinical and field work. The schedule combines descriptive and self-rating measures. Themes are organized in an appropriate sequence and examine memories of family in homeland, continuing experiences from the past, including ghosts or spirits, dreams, guilt, clarity of recall structuring of the past experience of death, anxieties, morbid thoughts, anger in response to separation and comfort from religion and religious practices. There are 50 items (Eisenbruch, n.d.).

Two groups of unaccompanied refugee adolescents were studied, 47 fostered in Cambodian group care in Australia and 32 placed in foster families (some Americans, some Cambodians) in the US. It was postulated that those living with American families would experience greater cultural bereavement than their counterparts with Cambodian families (in the US) or in Cambodian group care (in Australia). In some cases those fostered with American families saw little of their fellow Cambodians and had little or no access to Cambodian culture.

The youths in Australia had been resettled for an average of 28.2 (s.d. = 11.2) months, whereas those in the US had been resettled for an average of 15.9 (s.d. = 8.3) months. The effects can be explored by comparing groups of youths determined according to the

country and period of settlement. Three periods were used: up to 16 months, 17 to 32 months, and greater than 32 months. For each of the cultural bereavement items three specific hypotheses were tested. These analyses were carried out using a generalized approach to non-parametric statistics with an experiment-wise error rate of 0.05 (Meddis, 1984).

**Figure 1**  
**Structure of cultural bereavement interview**

Constructs from bereavement theory	Areas explored in cultural bereavement interview	Summary of items within cultural bereavement schedule
Perceptions of past	1. Memories of family	Who? what? Trigger? Response?
Communication with past	2. Continuing experiences	Presence? Communication? Exhort? Feeling?
	3. Ghosts/spirits from past	Exhort? Response? Contact? Trigger? Feeling?
Survivor guilt	4. Dreams	Trigger? Dream scene? Exhort? Outcome? Response?
	5. Guilt	Guilt? Reason for flight? Wrong to flee? Rationale for flight?
	6. Clarity of recall of past	Difficulty recognizing family? Difficulty being recognized? Response? Available souvenirs? Response?
Violence of separation and death	7. The structuring of the past in the homeland	Memories before vs. after revolution? Structure of memories? Transfer to host country?
No leave-taking	8. Experiences of death	Who died? Cause? Certainty? Participation? Whose fault? Leave-taking ritual? Expectation of return? Yearning?
Anger and ambivalence	9. Response to separation from homeland	Understanding of flight? Instigator? Past anger? Anger now? Fear of violence/war? Political context?
Antidote to cultural bereavement	10. Comfort from religious belief	Beliefs? Permission to express? Impact of revolution?
	11. Comfort from religious practice	Which practices helpful? Motive? Response?

A comparison of country of settlement was made, a test for decreasing bereavement (for each item) with length of settlement was set up, and the effect of length of stay on country of settlement was examined. This third comparison of the interaction of country



and period of residence was carried out for the first two time groupings (< 33 months). This analysis was intended to indicate whether country of settlement and length of residence factors were interdependent, at least in the initial stages.

Table 1  
Summary of statistics for cultural bereavement items

	Mean	(Standard deviation)	Mode (%)	% with positive scores
Bad memories during Pol Pot times	8.0	(2.1)	9 (69.1)	93.8
Comfort derived from traditional cultural ritual	7.0	(2.1)	9 (29.9)	86.2
Regret unfinished business in country of origin	6.8	(3.0)	9 (49.4)	81.6
Anger experienced at the time of separation	6.4	(3.3)	9 (42.5)	77.0
Comfort derived from traditional religious belief	6.2	(2.8)	9 (28.7)	75.9
Thinking often about family and homeland	5.8	(2.8)	9 (20.7)	66.7
Thinking more about family/homeland than previously	5.3	(3.0)	9 (23.0)	62.1
Regret leaving Cambodia	5.2	(3.3)	9 (25.3)	60.9
Want to go back to Cambodia	4.9	(3.1)	9 (19.5)	59.8
Angry now	4.7	(3.2)	9 (18.4)	54.0
Difficulty recalling appearance of parents	4.2	(4.0)	0 (39.1)	47.1
Dreams	3.2	(2.7)	0,1 (17.4)	31.4
Increased fear of danger and death	2.5	(2.9)	0 (27.9)	22.1
Bad memories before Pol Pot times	1.4	(2.3)	0 (56.4)	10.3
Ghosts and spirits	1.0	(2.3)	0 (71.3)	10.3

Table 2  
Average rank by country for cultural bereavement items

	USA	Australia
Bad memories during Pol Pot times*	40.41	31.08
Comfort derived from traditional cultural ritual	42.35	35.26
Regret unfinished business in country of origin	41.85	35.58
Anger experienced at the time of separation*	47.35	32.11
Comfort derived from traditional religious belief*	44.91	33.64
Thinking often about family and homeland*	44.86	33.67
Thinking more about family/homeland than previously	32.90	41.22
Regret leaving Cambodia	39.91	36.79
Want to go back to Cambodia	42.48	35.17
Angry now*	49.88	30.51
Difficulty recalling appearance of parents	40.38	36.50
Dreams	44.98	33.60
Increased fear of danger and death	33.02	40.39
Bad memories before Pol Pot times*	26.71	40.30
Ghosts and spirits	35.50	39.58

\* 5 per cent significance

Results

Item analysis

Mean scores on the cultural bereavement items ranged from a high of 8.0 for memories during Pol Pot times to a low of 1.0 for ghosts and spirits (Table 1). Anger at the time of separation and regret about unfinished business in Cambodia scored highly, as did comfort derived from religious beliefs and rituals.

Differences between US and Australia

There was a significant difference according to country of settlement for six of the 15 items. These were: thinking more often about the family than before, memories of life before Pol Pot times, memories of life during Pol Pot times, anger at the time of separation and anger now, and comfort derived from religion. Table 2 illustrates that the youths placed in the US scored higher average ranks than those placed in Australia for all but one of these items.

Time differences

For most of the items the length of stay in the country of settlement had no influence, which suggests that it might not account for the country differences. There was a decreasing trend of strength of comfort from religion with length of stay in the new country. Mean ranks for the three time groupings, from shortest stay to the longest stay, were 42.3, 41.9 and 27.7. It thus appears that for longer-term refugees religion provides less comfort.

The effects of time and country of settlement

For most of the items on cultural bereavement there was no interaction of period of settlement and country of settlement. Interesting differences between Australian and US youths appear on thinking often about the family and regret about leaving Cambodia. The mean ranks for the four groups are shown in Table 3.

Table 3  
Effects of time and country of settlement

	US		Australia	
	Time 1	Time 2	Time 1	Time 2
Thinking often about family/homeland	50.1	40.0	26.3	45.5
Regret leaving homeland	34.1	45.5	45.2	20.7

For the youths placed in Australia there tends to be an increase in thinking often about the family; for youths in the US there appears to be a decrease with time. Conversely, the youths in Australia tend to experience a decrease in regret about leaving Cambodia; those in the US tend to experience a progressive increase in regret.

The interaction between time and country of resettlement for the two items (thinking about the family and regret leaving Cambodia) shown in Table 3 is intriguing. It seems that youths in the US start out by being more immersed in the past than are the youths in Australia, and by all accounts this immersion has a painful and nostalgic quality. With the passage of time it appears that the nostalgia decreases for youths in the US while it increases for those in Australia, and the mean ranks show a crossover. How are these changes in nostalgic reminiscences associated with regret over leaving the homeland? The youths in the US started out by feeling relatively less regret than their counterparts in



Australia, but with time their regret grew, while the youths in Australia seemed to come to terms with their lives in the new country and their regret fell. Again these relative changes were pronounced as shown by the crossover in the mean ranks.

## Discussion

The results show that the youths continue to be immersed in the past, thinking often about their families, indeed more preoccupied than they had been when they arrived. Certainly there appears to be a sustained feeling of regret over leaving the homeland coupled with a wish to go back, and it is consistent with the wish, commonly expressed in the fieldwork, that youths wished to participate in the rebuilding of their country once the political situation allowed. Very powerful bad memories of atrocities during the Pol Pot times lingered, with a recollection of anger and regret at the time of leaving the homeland.

The youths seemed to feel that these painful feelings could be combated by traditional religious beliefs and access to ritual. Sometimes the importance of these feelings is ignored by policy makers and care givers who feel that rapid integration into Western thought, behaviour and religion is better for the refugee children, especially as they are young. The fieldwork indicated that much good could be done by promoting access of the refugee youths to Buddhist monks and to Cambodian traditional healers including *kru Khmer*.

Participation in traditional ceremonies does more than simply 'treat' the individual's grief. Any treatment of the individual patient (even if the treatment seems culturally appropriate) can be frustrating because the patient returns to a community which is itself in a state of collective grief. Group participation promotes a restoration of the patient's old culture and acts as an antidote not only to his or her cultural bereavement but also to that of the entire community. Successful treatment will ultimately depend upon community intervention to arrest and reverse the group's cultural bereavement. If, for example, the community is encouraged to re-establish traditional religious institutions (such as the Buddhist *wat*), refugee children will have a place to gather and worship. The enhanced sense of community and the availability of acceptable social supports both help with resolution of grief.

The trend for both groups of Cambodian youths towards the decreasing comfort derived from religion could reflect a reduction in need for, or greater difficulty in access to, the Buddhist *wat* (pagoda), or that alternative solutions are available.

Policy makers should be wary of jumping to conclusions on the basis of reports from recently arrived refugees. Nostalgic reminiscences may be a positive sign that refugees are responding to a permissive and safe environment that encourages the expression of painful latent feelings, or they may reflect an acute estrangement from self-identity and past culture that demands an opportunity for restitution. Similarly, the expression of regret over fleeing the homeland can express a healthy working through of feelings of loss and guilt over surviving, or the development of unresolved guilt, which can lead to psychological problems, such as depression, or potentially disruptive social problems, such as involvement in revanchist political or paramilitary movements.

## Extrapolations

The findings on this group of unaccompanied youths seem consistent with the impressions gained about a range of immigrants. Health workers who rely solely on Western formulations in multicultural settings may fail to recognize the full extent of a patient's loss and grief, and cultural bereavement may be overlooked. Patients' beliefs and actions may

suggest to a Western clinician that they are psychotic. It is not unusual to see, for example, Cambodian patients possessed by spirits, troubled by visitations of ghosts, hearing voices commanding them to make merit to ancestors, and feeling that they are being punished for surviving. All these can occur as culturally normal signs of bereavement, and patients often respond quickly to social and culturally appropriate intervention (Eisenbruch, 1987). But the uninformed health worker can be misled. It can be difficult to distinguish those patients who may truly be suffering a psychotic condition. It is essential not to diagnose a psychotic disorder wrongly nor to initiate an inappropriate treatment régime.

An understanding of cultural bereavement could help to identify cases where intervention might need to be extended by active intercession from traditional sources within the patient's community. The health worker could collaborate with religious functionaries or with traditional healers to negotiate a healthier 'separation' from the past.

An understanding of cultural bereavement could help in the clinical care of uprooted people in several ways by providing a clinical framework for exploring the patient's personal and cultural bereavement; clarifying the 'structure' of the patient's reactions to loss; complementing the currently used diagnostic categories and thus avoiding misdiagnosis; acknowledging the cultural system of meaning held by the patient; and providing information that can be used in planning social supports or interventions.

Cultural bereavement interviews are now being used in further studies of the adjustment of refugees in Australia, Canada and Israel, and in other community health research, for example, in a study of Ethiopian refugees. As modifications of the cultural bereavement interview are used with various uprooted cultural groups, more will be learned about their salient experiences, and it will be possible to identify crucial areas of need. The probe questions cannot be universally suitable and may need to be tailored to the circumstances and culture of a particular group. Ultimately, community health workers should be able to use the cultural bereavement interview as a diagnostic and therapeutic aid with a range of affected groups: refugees, victims of disaster, those subjected to rapid modernization, and others profoundly affected by a rapid loss of their past.

### Policy and health transition

In their review of cultural determinants of health in different countries, Caldwell *et al.* (1988) emphasize the need for anthropological research that takes as its starting point the findings of international comparisons and then explains the situation in a single society. The research in this paper has argued that the 'mental health' of immigrants is not merely a question of the individual's state of mind but can be influenced by interplay with the host country. The Cambodian youths studied were subject to different policies, and the results were evident in fieldwork and the cultural bereavement study.

There are various policies in several countries for dealing with uprooted youths who have no families to care for them. Policy makers around the world continue to debate the relative merits of group care, fostering, and independent living (Walter, 1979; Leer, 1979, 1983; USCC, 1983; Jockenhövel-Schiecke, 1984; Refugee Documentation Project, 1984). One policy, followed by countries such as Australia, is to allow the refugees to live together in group care while having every opportunity to integrate into the host society at their own rate. Thus refugees are able to maintain their cultural identity. A second policy is followed in European countries, such as Denmark, West Germany and France, where unaccompanied minors are structurally separated from the host society. Another policy of placing the



refugee with a foster family has been followed primarily in the US, but has been adopted by other countries for other ethnic groups.

There are important differences in intensity and quality of cultural bereavement among the Cambodian minors resettled in the US and Australia. Why should it be that, in comparison with their counterparts in Australia, the youths placed in the US are more afflicted by bad memories of Pol Pot times, recollect greater anger at the time of leaving their homeland, have stronger persistence of anger, continue to be immersed in thinking about their parents and their country, and at the same time make stronger claims for traditional religious practice? One possible explanation is that the youths in the US are placed with Cambodian or American foster families. When placed with the latter, they are usually expected to adjust rapidly and to adopt the behaviour and sometimes the attitudes of American youth. Their counterparts in Australia were placed in group care, where they have been encouraged to maintain a Cambodian ethos and practice, and have had no overt pressure to acculturate. It is suggested that the prevailing ideology in the US and Australia of 'doing good' for the health of others has a distinct influence on the health status of the young Cambodian refugees.

### Refugee children and health transition

Earlier papers have suggested that resettled refugees may need a moratorium during which they are under less pressure to acculturate. But the cultural bereavement of many refugees, especially the more traditional or those who were older when they arrived, will not be alleviated simply by a slowed rate of Westernization. Here one can see how classical grief theory is inadequate when considering cultural bereavement. Classical grief theory suggests that refugees will 'work through' their loss when they accept it and acquire new attachments and relationships, but many exiles clearly do not want to abandon their attachments to homeland, and nurture a hope of return.

Policy makers, program providers, and health workers are in need of proper criteria by which they can judge the impact of their interventions upon the refugees. But when they begin with the belief that refugee health lies in rapid acculturation, and that 'living in the past' is a signal of illness, the result can be self-fulfilling. By systematic measurement of that which is 'good' about current policy for refugee resettlement (for example, acquisition of acculturation skills), and by systematically failing to measure that which is 'not good' (for example, the suppression of traditional social structures and cultural meanings) the prevailing policy is confirmed as successful. The absence of recognizable sadness is regarded as a sign of good adaptation; too much nostalgic 'living in the past' is regarded as an illness, perhaps depressive disorder, that impedes adaptation. The cluster of nostalgia and sadness may be managed with Western treatments such as antidepressants, so that the refugee can get on with acculturation. The use of exclusively Western psychiatric instruments scales as criteria of 'wellness' might then confirm the 'success' of intervention. But the failure to measure the refugee's cultural construction of reality allows the continuation of therapies, policies and programs that are potentially iatrogenic.

According to the conventional model, alienation results from the failure by the refugee to acculturate to the host society; helping professionals and others intervene to 'improve' acculturation by providing opportunities to learn the host society's language, social customs and values. Personal and cultural bereavement are ignored. The alternative model shows why attempts to acculturate refugees rapidly do not always succeed. Indeed, difficulties in acculturation are the end result of alienation. This loop results from accelerated and forced

acculturation. The new model suggests that bereavement should be encouraged and the refugee allowed time to mourn the loss of country and culture.

The alternative model, which recognizes cultural bereavement, suggests that intervention should take place at three levels: to allow for and encourage the natural expression of bereavement within the refugee's cultural idiom; to provide refugees with a moratorium on acculturation; and to teach the refugees survival skills. The model suggests that, in comparison with American foster families, placement with Cambodian foster families is less likely to disrupt the young refugee's grief; will allow respite during which they feel less alienated; and will enable them to feel under less overt pressure to acculturate. Placement with a culturally familiar foster family is a positive intervention, and placement in a small group with Cambodian house parents would be likely to lead to a similar outcome.

The findings of this study throw into doubt some commonly held assumptions about uprooted youths. Refugee youths, for example, live in the past a lot more than is generally acknowledged. This is not to say that they should be encouraged to do so, or that they should be encouraged to plan their repatriation: the idealized repatriation of immigrants is not as curative as hoped (Douki *et al.*, 1982). 'Living in the past' is a crucial phase in their experiences, not only because it is a key to the process of bereavement, but also because without it the youths cannot reconstitute their sense of identity so brutally fractured by war. Uprooted youths must be enabled to carry out their grief without compounding their problems of alienation from their host society by also inducing alienation from their own culture.

Cultural bereavement does not take place in a vacuum. The attitudes of refugee care givers will allow or disallow the youths to grieve. Some foster parents and even agency workers feel threatened by any revivalist sentiment on the part of the youths and need to resist their tendency to prohibit the expression of the wish to return to Cambodia. If care givers cannot tolerate these challenges to their esteem, their foster children will pick up the message that they are not supposed to talk about their yearnings. These interactions between foster parents and young refugees need to be recognized and worked with.

Young refugees also need to continue familiar religious practices that can aid in the grieving process. Foster parents may need to learn the principles of Buddhism and to be advised against explicit attempts at evangelization. Some refugees living with American families or in refugee camps, for example, are under severe pressure to convert to Christianity and be 'saved'.

It is possible that the unaccompanied Cambodian minors can be a guide to the experiences of other uprooted children. Before generalizing from unaccompanied minors to other uprooted youths with parents some qualifications are needed. There are fundamental differences between young refugees with and without their parents. Future research should compare these groups, and should be carried out with a range of ethnic groups because there are culture-specific responses to loss that are based on differences both in the culture's theodicy (the charter for explaining human suffering) and its eschatology (the cultural explanation of death). Figure 2 shows a proposed model of the impact of immigration on core culture and the effects of cultural bereavement on clinical outcome and on the 'success' of multiculturalism.

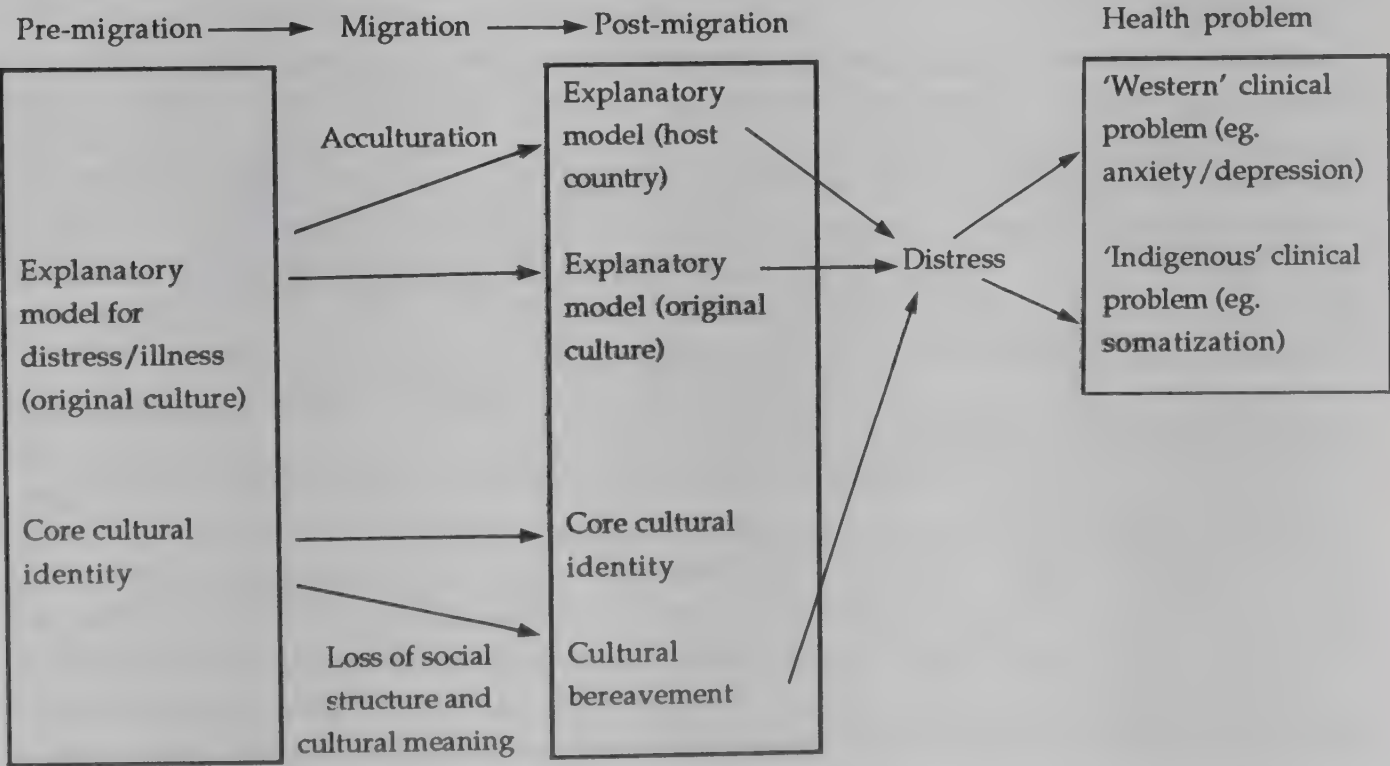
It is postulated that there is a causal relationship between health beliefs, clinical presentation and cultural bereavement. It works as follows: immigration and the associated



losses of familiar social structures and cultural meaning might be associated with cultural bereavement, with an effect on the person's core cultural identity. Cultural bereavement might be associated with the development of mental distress, which will be shaped by the culture of origin. The uprooted person might draw upon culturally determined explanations of mental distress. The development of symptoms might reflect the way that the patient understands loss of culture and the post-immigration experience. This understanding will be based on ideas both from the original culture (such as somatization) and from the host culture (such as anxiety or depression). The clinical effects of loss are proportional to the cultural gap between the immigrant's culture of origin and the culture of the host society. Culturally inappropriate health care may intensify cultural bereavement, leading to a vicious circle in which cultural bereavement causes ill-health and leads to inappropriate treatment.

The research reported leads to the proposition that immigrants in multicultural Australia must be experiencing health transition as a result of their shifting cultural identity and attitudes to health and illness. It seems possible that cultural bereavement could intensify with an increasing cultural difference of the immigrant group from the mainstream Australian culture. Immigrants whose cultural background is very different from that of Australian-born patients will use terms to explain their mental distress that are less familiar to Australians, while Australian patients will more often use Western explanations; and patients experiencing more cultural bereavement will use more non-Western explanations and fewer Western explanations for distress.

**Figure 2**  
The impact of immigration on core culture and the effects of cultural bereavement on clinical outcome.



It is essential to avoid over-generalizing when drawing inferences from one group of refugees to groups of nations and peoples. Kunitz (1990) has warned of this danger, which

arises from indiscriminate aggregation of data. It is necessary now to develop national community-based research programs that can explore these issues by anthropologically informed studies of selected communities. Samples of patients who represent the whole society could be examined in detail in a multidisciplinary strategy embracing medical anthropology, community medicine and transcultural psychiatry. The research agenda outlined in this paper can help to identify why immigrants sometimes are 'doing better and feeling worse' and how they make sense of their immigrant experience and any associated stress and social misfortune. The two latter factors tend to worsen the structural barriers no matter what the mainstream health system might try to do to overcome them.

Government departments seeking to improve ethnic health and human services have emphasized the need for access and equity programs. At the federal level the Office of Multicultural Affairs has encouraged portfolios including Community Services and Health to develop access and equity. State Ethnic Affairs Commissions are also active in implementing access and equity strategies. Despite this expenditure of energy, to the best of my knowledge few of these programs are being evaluated. In the area of health promotion for ethnic communities the problem is worsened by the lack of a measure of outcome, whereas in areas such as language the success of teaching and learning provides more obvious indicators. The World Health Organization has proposed the development of a public health index and of health impact statements, but to the best of my knowledge the algorithms do not include a factor for ethnic health. As Caldwell *et al.* (1988) have pointed out, it is hard to know how to measure care that does not result in sickness, and to measure sickness that does not result in death. This paper suggests that cultural bereavement could be a significant marker of health transition. There could be a case for including appropriately scaled measures of cultural bereavement, with other applicable psycho-social indicators, as a part of the public health index or health impact statements.

## Conclusion

There are important ethical issues for multiculturalism and health transition. In considering 'health maintenance behaviour', Caldwell *et al.* (1988) have noted that an interaction between individuals and healers tends to reduce mortality and probably morbidity. Examples from Kerala and Sri Lanka, with the most highly developed traditional health systems in South Asia, confirm the value of traditional beliefs and practices as contributing to health. Health beliefs are a cornerstone of people's identities, and these must be maintained if cultural identity is to be sustained. If the host society is sensitive to the need for cultural maintenance then immigrants are more likely to do well.

There is nothing radical in suggesting the importance of culture maintenance for people undergoing transition in developing countries, yet somehow this principle has not always filtered through to immigration authorities and health policy makers in developed countries. Sometimes host countries try to sanitize people by 'educating' them to be emancipated from their outmoded and 'unhealthy' beliefs. Cultural maintenance is more than an optional extra, for if traditional social structures and cultural meanings are not augmented in the new country, some immigrants may become prone to ill-health and be unable to retrieve a key piece of their identity. Indeed, when some immigrant groups learning new habits in Australia become prone to worse physical or mental health than in their country of origin, multiculturalism has failed in its promise to enrich their lives.



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## Chapter 38

# Who benefits from health-care decisions? Family medicine in an Andean Indian community

Ruthbeth Finerman

### Introduction

A diverse range of traditional and cosmopolitan health-care resources have become increasingly accessible to populations in developed and developing nations (Leslie, 1976). Our efforts to understand how individuals select from such 'pluralistic' options have been aided by recent research on medical choice. In these studies various decision models have been adopted in order to compare the perceived costs and benefits of using alternative therapies (Young, 1981; Kroeger, 1983; Stoner, 1985). Anthropological cost-benefit models evaluate financial and time factors as well as social constraints (such as stigma or status acquired by using a given health-care service), and emotional considerations, such as stress or reassurance from reliance on a specific health-care service. While sometimes controversial, such models have frequently proved to be powerful predictors of health-seeking behaviour.

Some studies portray medical choice as a process normally undertaken by patients themselves. In reality, though, therapeutic decisions are often made on behalf of the patient by other individuals. There are several circumstances under which responsibility for treatment decisions may be deferred to others. In many populations the largest proportion of illness is suffered by infants and children (Grant, 1988:1). These patients are too young and inexperienced to select treatment (Wilkinson, 1988). In other instances sick adults may be too ill or incapacitated to articulate their needs or make their own therapeutic decisions (Helman, 1984:96). When such conditions arise, who assumes responsibility for medical choice? More significantly, how does control over therapeutic decisions influence health care and the status of decision-makers?

My own longitudinal research on health-care choice among the Saraguro Indians of Ecuador indicates that a number of individuals, including therapists, regularly assume control over the medical decisions of others. Saraguro Indian mothers (female heads of households) were found to be the most frequent medical decision-makers, supervising virtually all treatment choices within the family. Moreover, findings suggest that the recovery of individual patients is not the only consideration shaping medical choice (see Matthews, 1987:55). Instead, Saraguro women are seen to weigh a range of personal and household demands along with the needs of sick family members in responding to illness, so that maternal control over medical choice has a profound impact on the quality of patient care. Moreover, cross-cultural data suggest that maternal responsibility for family treatment choice is widespread (cf. Litman, 1974; Cheney and Adams, 1978:82; Kleinman, 1980:187; Mwabu, 1986).

## Methodology

Qualitative and quantitative data on family illness and therapeutic choices were collected in six field seasons from 1978 to 1988, comprising more than 28 months of fieldwork. Saraguro mothers have acted as primary informants throughout this research, since they are identified within the community as the primary supervisors of family health and medical decisions.

I collected descriptive information on traditional home-centred curing beliefs and practices through participant observation and in-depth interviews with an opportunistic sample of 20 key informants, who were selected on the basis of their interest in the study and expertise in home treatment. Other traditional and cosmopolitan health-care systems in the Saraguro region were also documented through interviews and participant observation with most lay and professional healers. All interviews were conducted in Spanish, as informants are fully bilingual in Spanish and Quichua, the local Indian language.

I compiled statistical data on medical choice throughout this research period by repeatedly administering questionnaires on family health. The first survey of self-diagnosed family illnesses, therapeutic choices, and treatment outcome (identified here as the 1980-1981 Survey) was conducted once each month for one year between August 1980 and July 1981 with 140 participants in Saraguro women's health and community development meetings. The meetings were held one day per week during that period at satellite health posts in Indian districts or *barrios* in the region. The open-ended survey questionnaire recorded self-reported episodes of family illness from the preceding two-week period, treatments employed for each ailment (including detailed lists of traditional curing ingredients), and results of care: recovery, improvement, no change, or worsened. A total of 929 survey interviews were completed during this one-year period. In the 1980-1981 Survey, 2,735 illness episodes were recorded, and 2,460 of these ailments received some form of care. Finally, participants in the survey were asked to discuss their decisions to treat or ignore specific illness episodes, and factors which had influenced their health-care choices. Follow-up interviews were conducted by repeatedly administering the same questionnaire in 1982, 1984, 1986, and 1988 with approximately 50 of the original 140 volunteers in the 1980-1981 study. The follow-up interviews helped to identify changes in the health-care selection process. For complete details on methodology see Finerman, 1985.

## Illness and medical pluralism in Saraguro

An estimated 7,000 to 8,000 Saraguros live on agricultural lands around the county seat of Saraguro in the southern Ecuadorian province of Loja. They combine subsistence cultivation of maize, beans, potatoes, and squash with sheep herding and increasing participation in commercial livestock production. Most are bilingual in Quichua and Spanish. In the past century some families have migrated to surrounding highland and tropical forest territories to take advantage of new land and employment opportunities. During this same period individuals of mixed (*mestizo*) and pure-blooded Spanish descent began to settle in the town centre of Saraguro. Approximately 1,500 of these non-Indians, referred to locally as *blancos* or 'whites', now control most of the developed land in the urban centre, and labour there as artisans and merchants.

Saraguros suffer high morbidity rates for all age groups in comparison with the non-Indian town residents and with national averages for Ecuador (Finerman, 1982, 1983; Grant,



1988:65). Not surprisingly, then, Indians express persistent concerns about their health, and they invest substantial time and effort in the pursuit of quality care. Saraguros may consult a range of professional, lay, and popular sector resources (Kleinman, 1980:50-51).

For the past three decades Saraguros have had ready access to professional sector specialists such as pharmacists and licensed Indian nurses. Pharmacists sell medications from shops in the town. They are untrained, but by Ecuadorian law licensed druggists are free to stock and sell any medication without prescription. Indian nurses operate satellite health posts in the rural *barrios*. They participate in Saraguro women's community development meetings where they present health and hygiene lectures, vaccinate children, and treat minor illness complaints. In 1980 a government-sponsored hospital opened in the town centre, where Ecuadorian physicians provide cost-free biomedical care. The doctors are recent medical school graduates required by law to fulfil one year of residency in rural clinics before they can establish private practices (usually in larger, cosmopolitan cities). The hospital provides health check-ups and laboratory tests, but physicians do not distribute medications. Instead, they provide prescriptions which patients can use as guides for purchasing pharmaceuticals from town druggists.

Traditional lay healers such as midwives, herbalists and shamanic curers or *curanderos* all practise in the Indian community. Midwives (*parteras*) diagnose and treat problem pregnancies, infertility, and common childhood illnesses with massage, diets, and herbal and pharmaceutical preparations. Herbalists produce complex plant remedies for a range of traditional disorders, while *curanderos* specialize in the diagnosis and treatment of supernatural ailments such as evil air sickness (*mal aire*), soul loss (*espanto*), magical fright (*susto*), and envy sickness (*envidia*).

Saraguros also have the option of treating family illness within the popular or non-specialized sector, using home-made remedies produced and administered by Indian mothers. Home-based curing comprises a holistic set of health beliefs and practices for illness prevention and intervention. In this system women attempt treatment of virtually all health complaints with dietary regimens, hygiene practices, and complex medicinal plant preparations (Finerman, 1982, 1983, 1984, 1989a, b).

Saraguro women must select from the many available curing options that treatment system which is perceived to be the most appropriate for sick family members. Research has endeavoured to determine why Saraguro women assume primary responsibility for making these health-care decisions, which treatment services they tend to choose and why they select those therapies, and how control over medical decisions influences health and health care.

### Gender, status, and control in medical choice

Saraguros support a relatively flexible division of labour in economic production. Age has little bearing on the delegation of work roles. Children begin to assist their families with virtually all tasks by the age of five or six, and most Saraguros continue to fulfil these production duties throughout their lives. Gender roles in production have also become increasingly flexible in recent years. Many Saraguro men now migrate to other regions in search of wage labour or opportunities in commercial cattle herding. As a result, wives have been forced to compensate for the lost labour of absent spouses by taking charge of virtually all economic tasks, including the more arduous duties, such as digging and ploughing fields, traditionally managed by males.

While gender roles in production have broadened in response to new economic prospects, Saraguros maintain a strict division of labour by gender in the domestic sphere. The most strenuous domestic tasks, such as house construction, chopping firewood, and weaving, are almost invariably undertaken by men. Women with absent spouses usually solicit assistance from male kin or hire labourers to complete these tasks. By contrast, Indian women manage the bulk of duties associated with household maintenance and child care with the help of older daughters. In interviews, Saraguros commonly listed therapeutic care and treatment decisions among the many domestic tasks associated with mothers. Saraguros questioned about the division of labour consistently referred to curing as *trabajo propiamente de mujeres*; that is, 'women's work'.

Saraguros often describe health-related responsibilities as a logical and practical extension of a mother's role as nurturant family care-taker. Many point out that of all household members, mothers tend to spend the greatest proportion of time feeding, cleaning, and supervising offspring. Consequently, mothers are usually the first to recognize and respond to family illness. It also follows that, because children experience numerous illnesses and since mothers are normally the first to identify and react to these complaints, these women tend to be the most experienced and competent medical decision-makers in the household (Finerman, 1988, 1989a).

While practicality encourages Saraguro mothers to take charge of medical decisions and family health, research suggests that many Saraguro women actively seek responsibility for these duties. The health care-taker role has proved to be an effective status-enhancing strategy for these women, since it lends substantial power within domestic as well as social spheres (Finerman, 1988).

The health guardian and decision-maker role attracts prestige, and gives mothers legitimized authority over the behaviour of other household members. Success in the maternal health role garners the respect and gratitude of family members. More significantly, Saraguro husbands and children readily acknowledge the superior therapeutic knowledge of the wife-mother. Consequently, family members suggest that they are obliged to comply with maternal directives about diet, hygiene, work and sleep habits, and social and interpersonal relations, in order to avoid illness.

Mothers also acquire social prestige through the health-care role since their public standing is largely measured by the ability to adequately care for offspring. While attending public gatherings Saraguro women constantly discuss the appetite, sleep and work patterns, growth, and general health of their children. Women with healthy offspring are frequently complimented on their maternal skills. These women are highly regarded in the community and they may be widely consulted for advice because of their child-care expertise. While elevated social or class status is commonly thought to result in lower infant morbidity through greater access to health care, the inverse also appears to apply in the case of Saraguro; healthy offspring provide an opportunity for status-enhancement. That is, healthy children raise their mother's social position.

Although responsibility for health care can confer power and social prestige, women also risk public censure and status loss when members of households are ill. Women with chronically sick children are frequent targets of gossip and ridicule, and many of these women suffer derision from in-laws. Consequently, Saraguro mothers invest substantial effort in protecting their self-esteem, and they tend to select treatments which are considered most likely to preserve their reputation as well as the health of family members.



## Medical choice in Saraguro

As noted earlier, Saraguros have access to a number of specialized lay and professional sector services. Given the alternatives available, which therapists do Saraguro women choose to consult in the event of family illness? Quantitative data indicate that Saraguro mothers employ specialized services infrequently. Instead, women treat the majority of health complaints themselves, using home-based care (see Table 1 and Figures 1 and 2). Participants in the 1980-1981 survey of family illness and medical choice reported that they consulted midwives and *curanderos* for fewer than 1 per cent of all illness cases, while herbalists were employed for only 3 per cent of all cases. Indian nurses and Ecuadorian physicians were consulted for fewer than 20 per cent of all illnesses reported in the survey. While informants visited pharmacists for nearly one half of all health complaints recorded, these women explained that pharmacies are viewed solely as sources of ingredients used in preparing home remedies; the druggists themselves are not considered to be therapists. In contrast, mothers choose to treat nearly 90 per cent of all family illness episodes themselves, and home-based care was selected as the first course of action for approximately 75 per cent of all illness episodes recorded in the 1980-1981 survey. In most instances, mothers stated that they consulted lay or professional healers only after home remedies proved ineffective; many cases in the 1980-1981 survey received multiple treatments, so that the total number of consultations exceeds 2,460 (for additional information, see Finerman, 1985:184-194). Longitudinal data further suggest that this pattern of medical choice and consultation rates has not altered in the last decade.

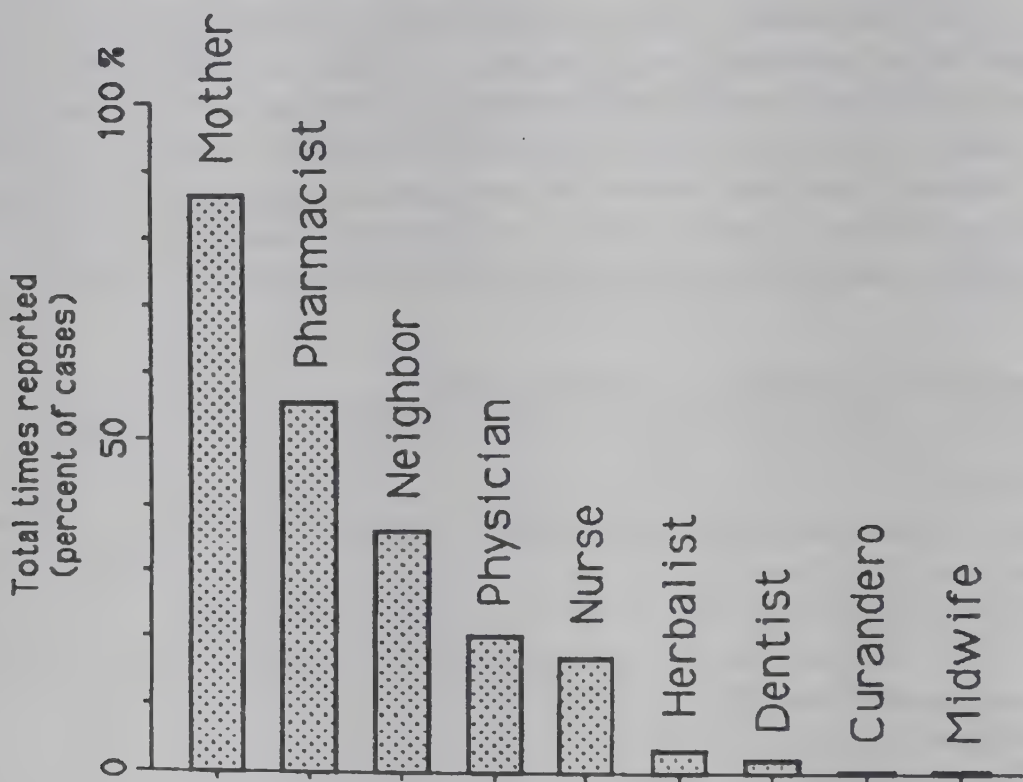
**Table 1**  
**Health complaints reported in 1980-1981 survey**

Illness	Number of cases
Colds and flu	480
Headache	217
Diarrhoea	211
Body aches	190
<i>Mal aire</i> ('evil airs')	181
<i>Nervios</i> ('nerves')	154
Stomach ache	136
Fever	94
<i>Frio</i> ('cold')	88
Skin rash	77
Upper respiratory infection	76
Parasites	75
Toothache	69
<i>Calor</i> ('heat')	63
Menstrual pain or disorder	51
Kidney infection	51
Other (47 complaints)	522
Total number of cases	2,735

How do Saraguro women come to select home care as the most common initial response to illness? Several cross-cultural studies of medical choice have found that

practical considerations such as treatment efficacy and the unreliable quality of clinical care, cost, distance to services, and time lost in consultations can have a profound impact on health-care decisions (see, for example, Anderson, 1973; Chen, 1975; Young, 1981; Okafor, 1983; Pedersen and Caloma, 1983; Stock, 1983; Stoner, 1985; Mwabu, 1986; Cosminsky, 1987). Saraguro women indicate that they, too, weigh several factors in selecting treatment, and that these have led them to rely on home remedies and limit use of specialized therapists. However, the concerns most frequently raised by these mothers suggest that family values and personal concerns, rather than practical constraints, play a decisive role in their health-care decisions.

**Figure 1**  
Healers employed by Saraguro Indians for the treatment of 2,460 illness episodes reported in 929 two-week recall periods in the 1980-1981 survey.

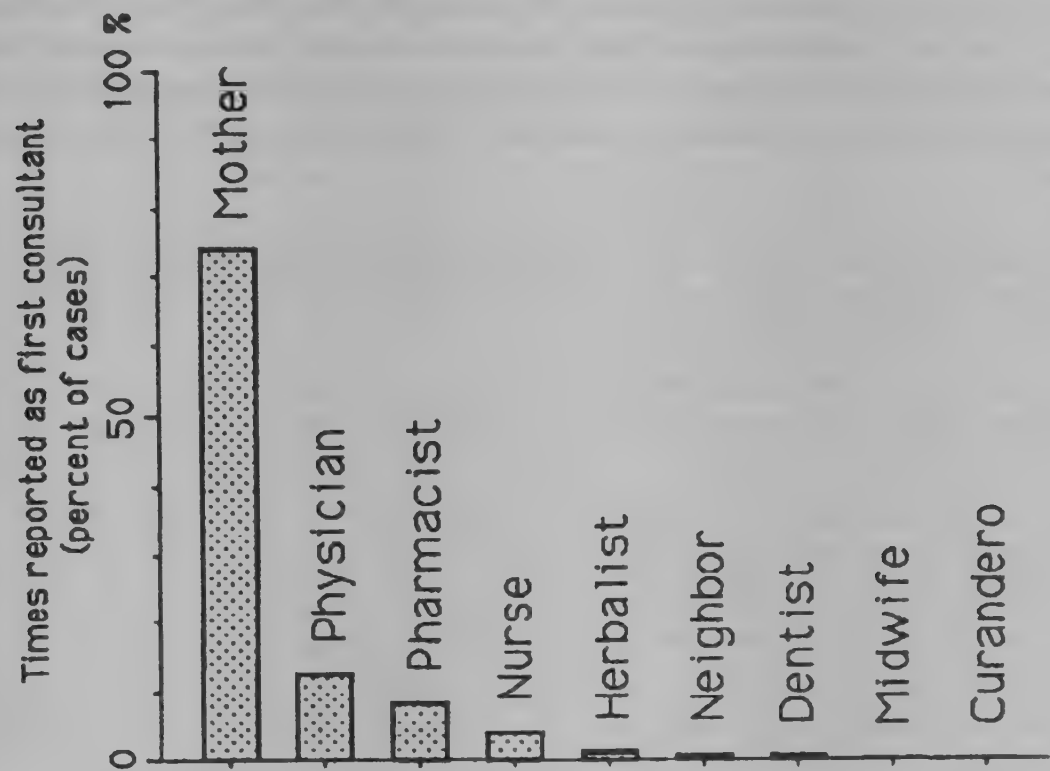


Note: Most illnesses were treated by several practitioners; consequently the total number of consultations exceeds 2,460.

In contrast with these other studies, Saraguro mothers readily admit that traditional and cosmopolitan practitioners can effect cures when home remedies fail. Many also note that lay and professional sector services are readily accessible in town and, since many healers charge little or nothing and since they free mothers from purchasing expensive, unnecessary and potentially dangerous pharmaceuticals, preparing laborious herbal remedies, and tending sick family members, specialized treatment represents an inexpensive and time-saving alternative to home-based curing.



**Figure 2**  
Healers listed as *first consultant* in 835 two-week recall periods reported in the 1980-1981 survey.



Note: Informants reported no illnesses or did not seek treatment in 94 additional two-week recall periods.

Despite the advantages inherent in selecting specialized services, a number of other considerations shape Saraguro women’s decision to initially treat most health complaints at home. Matthews recently noted that decision-makers are sometimes forced to weigh competing goals in selecting health-care services. She suggests that ‘Any decision about treatment will involve them in some consideration about how to handle these different goals’ (Matthews, 1987:55). Goals must be prioritized, reconciled, or otherwise resolved to make satisfactory choices. Saraguro mothers indicate that they are compelled to limit use of lay and professional care because these services make unfavourable demands on sick family members, households, and mothers. These women explain that patient dissatisfaction with the quality of specialized care, threats to household independence, and personal concerns about status loss encourage reliance on home treatment.

When questioned, Saraguro mothers claim that sick family members prefer the personalized attention of home-based care to the impersonal treatment provided by health specialists. Many studies note that patients are frequently alienated by impersonal care in therapy (see Aamodt, 1978; Hyde, 1977), and Saraguros who have received care from both lay and professional sector services tend to confirm this perspective. For this reason Saraguros tend to express greater approval for, and confidence in, home treatment. Former patients have asserted that, although specialists are trained (and licensed in the professional sector), they are not familiar with or sympathetic to the unique health-care

needs of individual patients. One young Saraguro female described her experience with specialized services, typical of those documented, as follows:

When I was twelve I had fever. My mother treated me with remedies, but the fever wouldn't leave me so she took me to the doctor. He put me in a room alone, and took my clothes and made my mother leave. It was cold and I was alone and really afraid. They fed me bad food so that I couldn't eat and I had to wait until the fever left me before I could go home. They did nothing; they left me alone until I said I was better. When my mother cures me I recover soon and I don't have to be alone.

This account illustrates the point that, for many patients, medical routines and indifferent care associated with specialized services are judged inadequate or ineffective even in cases where the treatment produces a cure.

Several studies have suggested that concerns for protecting cultural values and household autonomy can contribute to the rejection of cosmopolitan medicine (see Foster, 1958; Stoner, 1985:42). Saraguros have been found to hold high value for self-sufficiency in the family. Thus, Saraguro women maintain that other household members sometimes discourage decisions to employ lay or professional curers, viewing dependence on specialists for health care as a threat to their autonomy. As one informant remarked:

When you first go to these [healers] they tell you [you] must return to finish the cure. With that, little by little, you come to depend on them to cure everything, even as to the small things, and they take away your ability to care for yourself and your family. After this you have no freedom; you must do as they tell you.

Clearly, then, women's concerns about household independence may fuel their decisions to attempt initial treatment themselves, and they may choose to delay consultations with lay or professional therapists until home curing efforts have been attempted.

Data suggest that, of the many factors weighed in health-care decisions, concern about loss of the health care-taker role is central to women's decisions to minimize consultations with lay and professional therapists. Cross-cultural data indicate that mothers commonly regard specialists as competitors for the care-taker role, and they may view resort to such services as a public admission of their failure as healers and as mothers (Blaxter and Patterson, 1982; Graham, 1984, 1985; Whelehan, 1988). Saraguro women indicated that they consider medical specialists to be direct threats to their control over family health, and many suggest that kin and community sometimes criticize use of such healers as attempts to shirk maternal responsibilities. One woman gave an account of her efforts to cure her infant son, conveying her feelings of inadequacy when her remedies were ineffective:

When my son Segundo was sick he wouldn't eat or sleep, and he cried all the time. I made a [medicinal] tea and brought a pill for his cough, but it didn't help. My mother-in-law told me to see what the doctor could do. I didn't want to do this because everyone would know I couldn't care for my son, but I went. The doctor gave me a prescription for some pills and injections. My son recovered some, but the doctor said I had made my son ill with my teas. How could this be? How could a mother make her own son ill?

Saraguro mothers may manipulate their role in therapeutic selection to preserve their care-taker status. Since these women serve not only as family curers but as medical



decision-makers they can protect their self-image by choosing, when possible, not to employ specialized health services.

### **Implications of control in medical choice**

Control over therapeutic decisions can have a profound effect on Saraguro health. Treatment and recovery may be influenced by patient dependence on providers, and by conflicts of interest between patients and medical decision-makers.

Surrendering responsibility for treatment choice can lower self-esteem and hamper treatment and recovery (Salloway, 1982). Patients unaccustomed to supervision may be unwilling to submit to therapeutic decisions. Others may become excessively dependent on health providers and attract stigma from the chronic sick role (Alexander, 1982). In Saraguro, long-term reliance on mothers as decision-makers helps to minimize problems of conflict and dependency. Most Saraguros are accustomed to maternal control over health care, and few expect to make their own treatment choices when ill. For this reason Saraguros rarely debate the health-care decisions mothers make on their behalf. Mothers also discourage sick kin from adopting the chronic sick role by resorting to specialized care when their own curing efforts fail.

Patients must also trust the motives and competence of decision-makers, depending upon them to select treatments which satisfy their health needs. In some instances, however, other considerations may take precedence over patient interests. Saraguro mothers must weigh concerns for household autonomy and their own public image against the recovery of sick kin. Nevertheless, Saraguro mothers are usually recognized as experienced decision-makers who are highly sympathetic to the individual needs of family members. Since maternal self-image ultimately hinges on the welfare of kin, women tend to value the recovery of sick family members above other considerations (Wilkinson, 1988:71-73). Thus, mothers consult lay or professional specialists when home treatment efforts are exhausted, even though these services threaten their role as health providers.

Under some conditions, specialized medical practitioners assume control over medical choice and care of Saraguro patients, advising them on health matters such as diet, exercise and rest, illness prevention, and treatment. Lay and professional sector healers take charge over individuals seeking private consultations, and patients brought in by their family. Physicians and other cosmopolitan health advocates in Saraguro also recruit patients through mandatory checkups and health screening, which are required to obtain marriage licences and shop permits, and to register for school. However, Saraguros are generally unaccustomed to reliance on non-kin for medical decisions, and patient and practitioners frequently experience conflicts over treatment selections. Cross-cultural data reveal that resistance to power sharing in medical choice and lack of trust in the decisions of providers discourage therapeutic compliance (Salloway, 1982:69-71). Saraguros consistently questioned the judgement of specialists, and conformity with treatment was found to be poor.

Research has determined that, as with health-care choices of Saraguro women, the medical decisions of specialists are sometimes influenced by other goals or considerations. Lay and professional healers weigh the needs of patients against personal interests such as time constraints in consultations, fees, which can be assessed for specific services, the ability of individuals to pay for care, willingness to treat indigent patients, and opportunities for self-promotion and status enhancement through the healer role. Unlike mothers, however, lay and professional specialists in Saraguro were found to be consistently unwilling

to consult with other therapists themselves, or to refer patients to other practitioners when their own efforts failed. Interviews with specialists suggest that resistance to consultations and referrals is associated with concerns for preserving their own public image. Traditional and cosmopolitan therapists admitted that they had rejected second opinions and failed to make referrals even in cases where they had exhausted their own treatment options. Several of these therapists repeated the refrain *si yo no puedo, entonces quien?*: that is, 'if I cannot [help], then who [could]?'

## Discussion

Most Saraguros hold mothers responsible for the welfare of the family. These women must balance the treatment needs of sick family members with other household and personal interests. It is therefore suggested that Saraguro mothers choose to rely initially on home-based care because the costs of using potentially more effective alternatives are perceived to be excessive. Nevertheless, patient recovery remains a paramount concern, so that Saraguro women display a greater willingness for their professional counterparts to expand their curing efforts to include, when necessary, use of specialized services. Placing patient needs ahead of self-interest encourages confidence in health-care choice and the treatment process. It is anticipated that resistance to the medical decisions of specialists will continue in Saraguro until conflicts of interest between mothers, families, patients, and practitioners are equitably resolved.

## Recommendations

Several steps might be taken to improve relations between maternal, lay, and professional sector curers. For example:

1. Saraguro mothers would greatly benefit from increased access to information on family health. These women express persistent interest in expanding their therapeutic knowledge base, demonstrating this commitment by their attendance at health and hygiene lectures supervised by licensed Indian nurses. The scope and aims of these lectures must be expanded to include more advanced instruction in preventive care, birth control, breastfeeding education, and first aid (e.g., Oral Rehydration Therapy). These women might also be instructed on some basic diagnostic techniques for recognizing major as well as minor illnesses, and appropriate and inappropriate uses of pharmaceuticals. Such training would help mothers distinguish between illnesses which are readily treatable at home and those requiring more intensive or specialized care.

2. Clinical staff also require education to familiarize practitioners with the deeply-embedded health-care beliefs and values of the indigenous population. Biomedical practitioners must also be sensitized to the health-care needs of individual patients. Clinicians in Saraguro have repeatedly been observed to deride the traditional health practices of patients. These therapists must be made aware that treatment success is not determined solely on the basis of recovery from illness. Instead, the quality of care and the long-term viability of health programs depend largely on patient satisfaction. Similarly, response to treatment is contingent upon patient co-operation, and dissatisfaction with care is a leading cause of non-compliance.

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## Chapter 39

# Women's health-care strategies on a Guatemalan plantation

Sheila Cosminsky

The role that women play in the changes influencing health and health care is a critical issue that needs to be studied in health transition research or in any attempt to effect a health transition. Some of the complexities of this role as they pertain to Guatemalan plantation women are examined in this paper. These women have the primary responsibility for maintaining the health of both themselves and their families. This includes providing and/or obtaining health care for any family member who may become ill. This paper analyses the strategies that women on a Guatemalan coffee and sugar plantation, Finca San Felipe (a pseudonym) use in order to achieve this goal, and some of the factors that influence these strategies. Special attention is paid to the role that food availability and procurement play as a determining factor in women's health-care strategies and decisions. An extended case history is presented in order to illustrate these strategies and the situations in which they are used. By strategies, I mean the patterns of coping used by individuals in response to the opportunities or alternatives and the constraints in the local milieu (DeWalt, 1983: 12).

## Methods

Research on health beliefs and practices and illness behaviour on Finca San Felipe has been carried out in the course of several projects at various periods between 1970 and 1979. Some of the data were gathered as part of a larger multidisciplinary project on the ecological assessment of nutritional status of the plantation population. Most of the data in this paper were obtained during April-August, 1978 which are the months of the lean or hungry period, when money and food are scarcest. My co-investigator, Scrimshaw, returned during October, which was the height of the coffee season, when both food and money were more available, to obtain additional data. In this project, 35 households were selected representing a range of nutritional and health statuses. Each household had at least two children, one of whom was under two years of age. Illness episodes, health seeking behaviour, and expenditures of these families were tracked for at least two different two-week periods or *quinzenas*. The two-week period was chosen to coincide with the plantation's two-week pay schedule. Observations were made of folk healers and their practices, clinics and hospitals, and interviews were conducted with these healers, clinic and hospital personnel, physicians and other practitioners consulted by the local population for health care.

## Setting

The milieu of the plantation is one of poverty and poor living conditions. Land, labour and housing are owned and allocated by the plantation owner. Workers are provided with small plots of land on which they can grow crops for their subsistence or for cash. There is some micro-economic differentiation among the households, for example, full-time workers (*colonos*) receive eight *cuerdas* of land while temporary workers (*ganadores*) receive four

*cuerdas* of less productive land: a *cuerda* is 625 square metres; but almost all the workers, excluding the few salaried employees such as the cook, carpenter, office workers, and tractor drivers, live at a marginal poverty level of subsistence (Cosminsky and Scrimshaw, 1981). Housing is poor and overcrowded. Most, though not all, houses are in long rectangular buildings that are divided into single large rooms to which a family is assigned. These may be further subdivided into partitions to separate the cooking and sleeping areas. Other houses are one-room free standing units. Structures are composed of wood walls, earthen floors and tin roofs. Additions are sometimes constructed for married offspring or for a kitchen area.

There is no potable drinking water on the plantation and most of the population do not have their own water or latrines. They obtain drinking water from one of two public taps (*pilas*), and bathe and wash dishes and clothes in one of the local streams. People use the fields for defaecation. A few salaried workers have installed private water taps and constructed latrines.

The plantation population has poor general health and nutritional status (Sobel, 1977) and high birth and death rates. One field study (Kielmann, 1970) estimated the crude death rate as 28.2 and infant mortality rate as 129.9 per 1000 live births for an average over ten years, 1960–1970. Infant mortality for the years 1971–1975 was estimated by the author as 90 per 1000 live births and birth rates were estimated at 50.4 per 1000 population. These figures are minimal since there is underreporting, especially of infant deaths. In addition, there are wide annual fluctuations in these rates because of epidemics and the small population size of the plantation, which is approximately 700.

Diarrhoeal and respiratory infections and communicable diseases are common, especially among young children. These infections act synergistically with malnutrition in a generally poorly nourished population. Based on a 1970 survey using the Gomez method of classification, 41 per cent of children between one and five years of age had second-degree malnutrition (60–74% standard weight for age) or third-degree malnutrition (less than 60% standard weight for age). An additional 40 per cent had mild malnutrition: 75–89 per cent standard weight for age (Scrimshaw, 1977). A 1976 survey found that 35 per cent of the children studied had second-degree malnutrition and 0.04 per cent had third-degree malnutrition (Scrimshaw and Cosminsky, 1990).

Women also suffer from illness and nutritional stress. At least 70 per cent of the plantation women between 20 and 30 years of age are either pregnant, lactating, or both. According to a 1976 survey, only 8 per cent of pregnant women and none of the lactating women were meeting the recommended dietary level for calories (Gilbert, 1976). This low nutrient intake may precipitate more illness episodes. The stress of pregnancy and lactation compounded by frequent infections and inadequate diet may drastically affect a woman's ability to provide both food and health care for her family by reducing her energy level and limiting her activities, including travelling long distances for treatment and the ability to extend her cash resources to satisfy the costs of medical care.

### Health-care system

People utilize a wide variety of health-care resources, both on and off the plantation. The pluralistic system includes home treatment (usually a combination of herbal remedies and patent medicines), folk healers, lay injectionists, stores, pharmacies, travelling vendors, public and private clinics, hospitals and private physicians. Folk healers include herbalists, traditional midwives, spiritists, shamans, *quemaderos* (diviner-healers who burn incense



and candles), and curers who specialize in children's illnesses such as evil eye and fallen fontanelle. These treatment alternatives incorporate elements derived from Mayan Indian, folk Ladino, spiritist and biomedical traditions and have been described elsewhere (Cosminsky and Scrimshaw, 1980; Cosminsky, 1987). No biomedical services are currently provided on the plantation, except for a very small first aid station in the plantation office, which very sparingly dispenses patent medicines such as aspirin, malaria tablets, cough remedies and vermifuges. For a few years, 1971–1974, the plantation owner had provided a medical program which included monthly visits by a private physician, who also provided some family planning services.

People use multiple resources, sometimes sequentially, other times concurrently, in an eclectic and pragmatic manner. This is illustrated by the case study presented below. Case studies highlight the dynamics and complex interrelationships among the various factors that affect health and health care and the different strategies employed to obtain health care. The following case study represents a household with persistent illnesses of both the mother and the members of her family, and with few economic and social resources.

### Case study: Elena (pseudonym)<sup>1</sup>

If we get sick, there is no money...Since I am frequently sick and the children are always sick, I haven't been able to work like some of the other women or to go out and clean the fields...I am ashamed (*me da verguenza*) because we have nothing. We are poorer than many others and there is always sickness...If there was no sickness, we would have some money, but since we are sick, there is none.

Elena is a 27 year-old mother with four small children: Miguel who is 16 months old, 4-year-old Maria, 9-year-old Casilda and 10-year-old Alma. Her husband, Antonio, is a *ganador* on the plantation. They live next door to her mother-in-law, who was also sick. While her mother-in-law helped Elena with caring for the children at times, she also was an extra burden when she was sick. Everyone in the family, including herself, was sick for most of the study period.

Elena said weeping, 'If only I had a sister to help me! But by myself I can't even prepare the food'. She said her father won't help them at all and won't let her mother help her to wash clothes or anything. When her mother bought some things at the market for her, her father scolded her.

In February, two months before our study began, Elena had had chills and fever. When the malaria team from the Ministry of Health had visited the plantation they told her to go to the hospital in Quezaltenango (about one hour by bus) and to take Arelen. She only did the latter, saying she did not have the money to do the former. At various times, Elena had fever, chills, sore throat, cough, swollen glands, lumps on her neck, headache, diarrhoea, stomach cramps, and urinary bleeding. All the children suffered on and off from colds, cough, fevers, and diarrhoea. Miguel, the baby, was the sickest and at various times had diarrhoea, vomiting, fever sores, conjunctivitis, and bronchitis or a severe cough. In March, when Miguel was sick with fever, inflamed throat, and bronchitis, they had borrowed Q10 from the office manager, which they used to go to a physician and buy the prescribed medications, which the baby vomited up. On April 1, she took Miguel to the public health

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<sup>1</sup> Names of informants have been changed except for those of healers and practitioners, whose real names are used, since they are public figures.

clinic, where they gave him an expectorant which helped a little. He then got diarrhoea and fever, and she went again to the clinic, but since they were giving nutrition classes and having prenatal clinic that day, they would not examine him. They did give her some gentian violet for the sores he had in his mouth. She bought some patent medicine for the fever. At the end of April, Elena said that if they had money she would take a bus to go to a doctor, since she was too sick to walk to the clinic.

Both the lack of money and her own illness condition were constraints on obtaining medical care for herself and Miguel, and eliminated both the San Cayetano and the public health clinic in San Felipe, the public health clinic in Retalhuleu and a private physician as treatment options at that time. So she resorted to inexpensive patent remedies and injections which she could buy on credit from one of the stores on the plantation and from Don Max, the travelling medicine vendor. She then sold some corn to obtain money for medicine.

Miguel's diarrhoea and fever continued intermittently and she gave him mixtures of patent remedies and herbs. She was afraid to take the baby to the clinic in San Felipe because of the '*brizas*' or '*aires*' from the river to which one is exposed in crossing the bridge and which are believed dangerous to a sick baby. The lack of money for bus fare and fees prevented her from going to the clinic or physician in Retalhuleu. In June, she continued sick and went to the pharmacy. The pharmacist told her she had a lack of blood (*falta de sangre*) and sold her some pills, 'so the lumps in her neck don't turn to cancer'. He said she needed blood serum (*suero*) with vitamins because her blood was finished. However, she had no money to buy that. Meanwhile, her husband was working on the manager's land in the afternoons in order to work off the debt from the money he had borrowed in March.

In May, her sister-in-law, who had been living next door with her mother-in-law, had died from a sudden fall which a physician said was from a brain tumour. Others had attributed the death to witchcraft. Both Elena's mother-in-law and her husband had the illness, *tristeza* or sadness, due to her sister-in-law's death. However, according to Elena's brother, who was also a healer (*quemadero*), this death had caused 'bad influences' in the house which were a factor in causing continued illnesses in her family. In order to get rid of these influences and as part of the cure for her husband's illness, she should make pilgrimages to nine different churches. This was very burdensome and entailed a large investment in time, energy and money for fare and materials like candles and incense. Because of the faith in her brother's powers and the attribution of a supernatural cause to the family's difficulties, she felt obliged and pressured to comply with this demand. By the end of July, she had gone to five of the nine churches. She also consulted an Indian shaman who told her there was a *mal puesto* against her. She had left some hair in the river when bathing which the person used to do evil against her. In order to get rid of the evil, she is supposed to come back in one month for another ceremony, which costs Q7, plus Q1 fare. He also prescribed three injections of calcium and vitamin pills for her husband's illness and 'lack of blood' and two injections of Paludol for Elena for malaria. She then asked her brother if she should complete the ceremony, and he advised her to do so.

The lean season, April-July, when both food and money are scarce, was very stressful for Elena. In order to buy medicine and food they sold corn several times. Sometimes this meant selling the corn for eight centavos a pound, which was below the market rate of ten centavos. In June, they ran out of corn and had to buy it. The average income of Antonio,



her husband, was Q17 per *quinzena*. However, during one period in July, he earned only Q14 because he was sick. After paying the Q11 he owed for the corn, they only had Q3 left for all other food and expenses. At that time, they cut back severely on their food expenditure and did not buy any meat, beans, rice, or white sugar, and reduced the amount of brown sugar. Elena and her husband increased their gathering activities, substituting wild greens for other food (another strategy). They ate greens at least eight times a fortnight. Greens are often regarded as a poor person's food.

Throughout June and July, the baby had diarrhoea on and off and was given a variety of remedies and injections. On July 31, he got worse with cough, fever, vomiting and conjunctivitis. They had just harvested the corn and sold 100 pounds for Q11, which they used for medical treatment for the baby. On August 1, Elena took him to a physician in the town of San Felipe, who wanted her to leave the baby in the San Cayetano Catholic hospital in San Felipe, but she didn't want to because she was still nursing him and the hospital did not allow mothers to stay overnight. Instead, she asked the physician to prescribe medicines, which she bought with money from selling corn. The baby vomited up the medicine. While in San Felipe, Elena visited her godmother who gave the baby an enema, which caused him to expel some worms. When Elena came home, she made some home remedies to make the worms go back into their bag in the baby's stomach. She gave the baby Alka Seltzer, mineral water and bicarbonate of soda since he had a lot of heat in his stomach. At night she went to her brother who did a consultation and ritual for her and told her to take the baby to a doctor right away. The next day she borrowed Q10 from the plantation owner and Q5 from myself to pay for doctor's fees, transport and medicines and some of her debts, and she took him to another doctor in Retalhuleu. He prescribed medicine for the baby, which seemed to help, and also for Elena. However, she couldn't buy these because she had no money left. The borrowed money would be deducted from her pay during the coffee picking season in October.

Although Miguel was the sickest of the children, the others were also ill during this period. Maria had a bad cough and fever, for which she received vitamin injections prescribed by Elena's brother and given by a local injectionist, and she had diarrhoea in July, for which she was given a herbal bath by Marina, and Terramycin pills. Casilda, the nine-year-old, had diarrhoea, fever and vomiting in April, a cough and fever in May, and bronchitis in June, for which she was given a variety of home and patent remedies and injections. Alma, the oldest, had a bad cough through most of April and May, and had some cough syrup from the public health clinic and from the pharmacy, and some tonic prescribed by her healer uncle.

Once the coffee season began, the situation improved. In October, the baby was well. Elena was picking coffee and with the girls' help earned Q20 a fortnight. Her husband earned Q37 for the fortnight October 14-27, more than double what he had been earning in July and August. They paid off several of their debts and had corn from their harvest. They increased over tenfold the amount of meat and beans they consumed, and had no medical expenses.

Table 1 traces chronologically the illnesses, the treatment resources, costs, and some of the health-care strategies used by Elena between March and August 1978. Table 2 lists the specific patent remedies and pharmaceuticals and Table 3 lists some of the medicinal plants used during that period.

In this time period, the family spent over Q70, seeking help from the private clinic, the public health clinic, three private physicians, injectionists, shamans and spiritists and using a variety of herbs, patent remedies, pharmaceuticals, injections, prayers, and rituals.

When I returned the following summer, the situation had deteriorated again. Elena had another baby in July and she was quite ill both before and after the birth. The cycle of borrowing, buying on credit, selling corn and animals in order to obtain health care had begun again.

Table 1  
Illness and health seeking behaviour of Elena, April–August, 1978

Date	Person	Illness	Treatment	Cost (Quetzals)	Strategy
March	Miguel	fever, bronchitis	pharmacy, doctor	8.50	Borrowed Q10
April 1	Miguel	cough, cold	clinic	.25	–
April 19	Miguel, Alma, Casilda	cough, cold cough diarrhoea	patent remedy clinic clinic, patent remedy	.07) .25) .07)	low cost medicines
April 22	Casilda	diarrhoea, fever, vomiting	home treatment, herbs, patent remedy	.64	–
April 26	Miguel	diarrhoea	clinic (not examined), patent remedy	.07	–
April 30	Elena	sore throat, neck lumps, fever	patent remedy, Marina	.05	mother bought meat
	Miguel	diarrhoea	patent remedy, Marina	.12	credit
	Maria Casilda	cold diarrhoea	– patent remedy, Marina	– .07	– –
May 3	Miguel	diarrhoea	patent remedy, Marina	.07	sold corn
May 9	Elena	fever, swollen glands, headache	patent remedy, Marina	.20	–
	Miguel	diarrhoea	patent remedy, Marina, candles	.12 .25	– –
	Maria Casilda Alma	cough cough, asthma cough	– – –	– – –	– – –
May 12	Elena	lumps on neck	injection, healer patent remedy home treatment	1.50 .10	brother
	Miguel	diarrhoea		–	–

continued over



Table 1 continued

Date	Person	Illness	Treatment	Cost (Quetzals)	Strategy
May 19	Elena Miguel Casilda	lumps on neck	injection	2.50	sold corn
		cold	patent remedy	.07	
		cold	herbs, patent remedy	.12	
	Antonio	stomach ache, sadness, heart pain	healer	.50	
			patent remedy	.10	
			pharmacy	.50	
May 21	Miguel	diarrhoea, cough, swollen stomach	patent remedy	.05	sold corn
	Casilda	fever	injection, Max patent remedy	3.00 .36	credit
May 26	Miguel	diarrhoea, fever	herbs, patent remedy	.17	ate greens
	Casilda	fever, fever sores	pharmacy, patent remedy, home treatment		
			pharmacy	3.05	—
May 29	Alma	cough		5.00	—
	Miguel	diarrhoea, fever	injection, medicine, healer		—
	Alma	cough	medicine, healer	3.00	—
June 2	Elena	fever	pharmacy	1.67	husband worked overtime consulted brother
		stiff neck, lumps, 'lack of blood'	healer ceremony	2.75	
	Casilda	bronchitis	injection, Marina	.75	
	Maria	fever	injection, healer, vitamins	1.50 .10	
June 3	Elena	cold, dizziness, headache	patent remedy	.10	—
	Miguel	rash	—	—	
	Maria	cough	—	—	
	Olga	sadness, chills, crying, can't sleep	injection, Marina	.75	
June 9	Elena	headache, chest pains	Marina prescribed Baocalina tonic	—	—
June 11	Elena	headache, cramps, nausea	patent remedy	.18	husband gave her Q8; paid off medical debts
	Miguel	diarrhoea	home treatment, patent remedy	.15	

continued over

Table 1 continued

Date	Person	Illness	Treatment	Cost (Quetzals)	Strategy
June 20	Miguel	diarrhoea	injection, Marina	1.50	—
	Maria	vomiting, fever	herbs, patent remedy	.05	
July 6	Elena	weakness	pharmacy	2.34	—
	Maria	diarrhoea	—	—	
	Casilda	pallor, weakness	patent remedy	.75	
July 9	Elena		shaman	9.00	—
July 14	Miguel	fontanelle	healer	.25	—
July 16	Maria	diarrhoea, <i>chipe</i> (jealousy): whining, cranky	healer		didn't buy meat
July 20	Elena	urinary bleeding, lumps on neck and behind ears	patent remedy, herbs , patent remedy, home treatment, clinic	.12  .45	—
July 24	Elena	cough, cold	patent remedy	.15	didn't buy beans, meat, sugar
	Antonio	thigh muscle cramps	patent remedy, healer		
	Maria	diarrhoea	patent remedy	.11	ate greens
July 26	Elena	stomach cramps, diarrhoea, fever, headache	herbs, patent remedy	.47	—
	Maria	better	herbal bath, Marina	—	
	Miguel		herbal bath, Marina	—	
July 29	Elena	fever sores on mouth	home treatment	—	—
	Miguel	conjunctivitis	—	—	
	Maria	diarrhoea	patent remedy	.15	
July 31	Miguel	conjunctivitis, fever, cough, vomiting	—	—	—
August 1	Miguel	conjunctivitis, fever, cough, vomited medicine	enema, Dr. F. herbs, patent remedy, healer- ceremony	8.15	sold corn, went to see godmother, consulted brother

continued over



Table 1 continued

Date	Person	Illness	Treatment	Cost (Quetzals)	Strategy
August 2	Miguel	as above, plus worms, evil eye	home treatment, patent remedy	.50	borrowed money from <i>finquero</i> and from researcher
August 3	Miguel Elena	as above fever sores	Dr. R. 'had no money to buy the prescribed medicines'	9.12	changed doctors
August 5	Miguel	fever better, expelled worms			

Table 2

Patent medicines used by Elena's family, April–August, 1978

Agua Florida	Injections – unspecified
Agua Selectiva	Magnesia escaler
Alka Seltzer	Paludol-pills
Arelen	Paludol-inj.
Aspirin	Pomada Belladona
Bactrin	Pomada de lima
Balsamico	Sal Ingles
Baocalino tonic	Salvia santa
Bicarbonate of soda	Santemesina
Brilliantina	Streptomycin-inj.
Calcium injections	Sulfato
Enteroguanil	Tanderil
Estomal	Terramycin-ointment
Forticon Fuerte	Torfan (cough med.)
Gentian violet	Valpin PB
GMS Pomade	Vicks Vigaron
Gripon	Vitalfuerte
	Vitamin injections

Table 3

Medicinal plants used by Elena's family, April–August, 1978

<i>Barba de ajo</i> (garlic roots)	<i>Piton papaya</i>
Eucalyptus	<i>Ruda</i> (rue)
Orange leaves	<i>Salvia Santa</i> (sage)
Pimienta	<i>Yerba buena</i> (mint)

## Discussion

The above case illustrates a variety of strategies and factors influencing health care. One of the most important constraints on obtaining health care is the lack of cash. Although the husband may provide cash for medicines often he is unable to or fails to do so. Then the

responsibility falls on the woman and she must resort to various strategies to obtain health care. One set of strategies are economic ones, especially those that can increase her access to resources and the amount of cash available. Strategies to increase the amount of cash available are usually means to obtain quick money and include borrowing money, selling animals and pawning items. One woman even sold her shoes, which she used only for special occasions, to obtain a few quetzales for medicines. Other strategies are aimed at extending the value of cash for health care and enable a woman to obtain medical treatment quickly when no or little cash is available. These include credit, buying in small amounts, and use of multiple treatments. However, the short-term benefits are traded off against the long-term costs of higher prices for medicines. These short-term means of coping are different from the economic strategies that some of the plantation women employ on a longer-term basis to provide a steadier and regular cash flow, such as petty trading, selling fruit or foodstuffs, sewing, cooking, doing others' laundry, increased wage labour, curing, and various business or entrepreneurial ventures (Scrimshaw and Cosminsky, 1990).

The most important source of cash is wage labour. Permanent male plantation workers earned an average of Q18 a fortnight in 1978. Women earn wages primarily picking coffee during the coffee season, mid-August to November. Household composition can drastically affect the available income. Young children help their mothers pick coffee which is pooled together. Adolescents above 14 years of age work either on the plantation if jobs are available or on neighbouring plantations, and give most of their earnings to their mother. Occasionally, they may work in one of the cities, especially an unmarried girl working as a domestic. Elena's household is a young one since the oldest child is 10. Thus she has a high dependency ratio (number of children per adult in the household), with no extra income from her children. Working extra hours either for the *finquero* or for one of the administrators or managers on their land is one strategy that the husband may use to get more money.

If the family has corn from their *milpa*, then the husband's earnings may cover their minimum expenses. Several times Elena sold some of their harvested corn for cash to buy medicines or other food such as meat. This is usually considered a rather desperate or emergency measure when quick cash is needed. Elena said 'I do not want to sell the corn, but I am fighting for the baby'. However, in the lean or hungry season when most people run out of corn and have to buy it, as Elena did in June and July, the man's salary alone may not cover their costs. Several women said that they lacked money to get treatment during this season. As one woman stated, 'if we have money, we're cured; if not, we die'. In order to avoid this extreme, some of these women, including Elena, resorted to alternative strategies: they used less costly therapies such as home treatment; they put off more costly treatment until the illness was perceived as severe and resorted to one of the strategies to obtain cash; or they delayed treatment until the corn or coffee harvest. 'If I buy medicine, I don't buy food', stated Elena. When her husband lost days from work due to illness, Elena used a different strategy; she resorted to cutting back severely on their food expenses and did not buy any meat, sugar, or beans; they gathered and ate more wild greens. The use of wild greens was a strategy Elena used several times to extend their food resources. The trade-off between food and medicine is an important consideration. Sometimes, to save on food, her husband did not eat. She said: 'When the baby was born, he didn't eat in order to get medicine for her. He got dizzy and fell from not eating'. However, the inadequate food



intake has a potentially negative synergistic effect in further increasing the susceptibility of household members and thus their ability to function.

Although the primary responsibility for health care falls on the women, men also play an important role, both economically and socially. Men are expected to provide corn for their families and to give part of their salary to their wives or mothers for additional food or household expenses. Sometimes they give money to women to purchase medicines or buy remedies themselves. Actual male involvement varies widely. All too often, however, a significant amount of a man's salary is used to buy alcohol and to pay debts for purchases of items such as radios. Elena's husband, however, was supportive in several ways: he did not drink, he was willing to borrow money that he would have to work extra to pay back, he agreed to sell their corn for medicines (Elena said that this was a joint decision), and even ate less in the attempt to save on the food budget.

Raising and selling animals is another way of expanding one's cash availability. Elena was raising a couple of piglets but did not sell them since they were still small during the above period. She also had a couple of turkeys, from which she was getting eggs. The following year, however, when she had another baby, and was quite sick again, she borrowed Q30 from one of the tractor drivers, they sold one of the pigs for Q35 and they sold two ducks for Q3 each.

When cash is unavailable, buying on credit is the most common strategy. The two main sources of medicines on credit are Marina's store on the plantation and the ambulatory vendor-injectionist, Don Max, who visits the plantation every couple of days on his motorcycle. The town pharmacies require cash purchases. Marina and the two school teachers also give injections. The use of credit results in higher charges than the pharmacy's, especially by Don Max. A woman will try to spread out debts by obtaining credit from different stores or practitioners, or when she reaches the credit limit with one resource, will buy medicines from another. A woman has to balance the amount and duration of the debts, repaying as much as possible as soon as she can, in order to continue her credit. Although Elena occasionally used Don Max, her primary source of medicine was Marina's store, where she could get both advice and credit. She also had a special social relationship with Marina: she had worked as a domestic for her for several years before she got married, and Marina was godmother for her children. This placed Marina under a certain obligation to help Elena in times of necessity.

Most of the medicines that Elena bought from Marina were patent remedies, one or two at a time for 5 or 10 centavos (Table 1). Injections also may be bought one at a time. Buying in small quantities is another strategy for maximizing the amount of medicine which can be obtained with available cash. Often the person cannot afford the amount prescribed by a physician or healer. Although this makes the medicine affordable in the short run, it may be more costly in the long run, not only financially but with respect to the illness itself. The patient may obtain some temporary relief, but the symptoms may return because the full course of treatment was not taken. Another danger is the building up of resistance to certain drugs, especially antibiotics.

Multiple treatments are another strategy for obtaining treatment despite lack of money. Although the initial treatment in an illness sequence is often inexpensive home remedies, the woman may resort again to home treatment if more expensive therapies have been unsuccessful. This occurs repeatedly in the course of the illness treatments in Elena's household. Often biomedical treatments will be used for symptoms and ritual and

spiritual treatments will be used to either ask for protection or to seek the cause of the illness.

A young family like Elena's can be especially vulnerable. Small children have more illness episodes with heavy disease loads. Consequently they may be a constraint on the mother's activities and a drain on household resources, not only of cash but of the mother's time and energy. At the same time, without older children there is less social support available in times of illness either for child care or for household tasks or for non-cash household labour, such as weeding the fields or gathering greens. Thus one's social networks can also have significant economic implications.

A second set of strategies centre around social support networks. A mother or mother-in-law or sisters are often critical social resources enabling a woman to go for health care either for herself or her children. Treatment decisions are usually made after consulting with one's husband, relatives, godparents, neighbours, and local healers. Elena was dependent primarily on her mother-in-law, who occasionally helped her with household chores and watched some of the children. However, she was quite weak and ill herself much of the time. Elena was unable to get much help from her mother although she did sometimes leave her youngest daughter with her and her sister-in-law. One of the primary kin ties that Elena used was that of her brother, who was a diviner and healer. She consulted him several times, although she had to pay for the consultation and ritual materials. He was easily accessible, living a few houses from her and her confidence in him seemed to be due primarily to their kin relationship. She also activated her godparent relationships, and received advice and treatment, both spiritual and medical, from her godmother in the town of San Felipe and from Marina who was godmother to some of her children.

## Conclusion

Elena's case reveals the complex interaction of illness, religious beliefs, family relationships, emotions, the characteristics of the available health-care resources and the circumstances of poverty. It emphasizes how these influence both the treatment decisions and the strategies used to obtain health care and implement these decisions. These health-care strategies used by the plantation women are summarized in Table 4.

The particular treatment option chosen is the result of weighing the costs and benefits of each alternative in relation to one's own assets and constraints. The availability of cash, distance, transportation, time, perceived severity and persistence of an illness, beliefs about illness causation, the expectations people have of the different treatment specialists and services and the attitudes these have toward the people, and the structure of the services are all factors that influence a woman's decision.

At a time when Elena's own physical capacity was reduced, she had to devote more of both time and energy to the care of sick family members. Her situation is not unique but is common and fairly representative of the plantation women. Other households may differ in having older children and thus more economic and human resources available or having wider social networks, and fewer or more illnesses, but they also use some or all of the strategies that Elena used.

One of the most important considerations that influence women's decisions about treatment options and health-care strategies is the availability of food. Most studies have considered health care separately from food production, distribution and consumption but in this study we have found them complexly intertwined. One cannot understand women's strategies to either maintain the health of their family or obtain health care without also



considering the way these are balanced or traded off against food availability and vice versa. Food can act either as a resource or as a constraint. Food is important not only as

**Table 4**  
**Health-care strategies**

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Economic strategies:

1. Wage work - husband, wife, other children; working overtime
2. Borrow money - working it off at a later time
3. Food related -
  - a. Sell corn
  - b. Raise and sell animals
  - c. Reduce food expenditures, cutting back on intake
  - d. eat more wild greens
4. Buy food and medicines on credit
5. Buy small amounts of medicine
6. Utilization of free or low cost treatments- e.g. home or herbal remedies, inexpensive patent remedies
7. Multiple treatments
8. Pawn items such as radios or watches for cash

Social support strategies- use of relatives, godparents, neighbours to:

1. Provide child care while mother goes to health-care resources or to market
  2. Go to the market or buy food and help with household chores (washing clothes, food preparation, cleaning house, etc.) when mother sick
  3. Give food to the family
  4. Provide health care or advice
  5. Provide emotional support
- 

a means of nutrition to maintain health, but also as a resource used to obtain health care. Illness in turn can affect the obtaining of resources, including cash and food, and thus contribute to scarcity. Illness treatment can result in costly expenditures and debts and reduce the amount of cash available for food. Treatment may also be delayed and illness may be prolonged or become more severe because of the unavailability of cash or food. Scarce resources thus affect the health of people, especially their nutrition, and the ability to obtain health care. Illness, treatment costs and availability of food interact and may result in a cycle of less adequate food supply, debts and suboptimal nutritional and health status (Scrimshaw and Cosminsky, 1990)

Nations and Rebhun (1988) have recently examined the theories of biomedicine, fatalism, culture of poverty and selective neglect in explaining maternal attitudes and behaviour toward infant morbidity and mortality in northeast Brazil. They show the efforts of families to obtain medical care, the realistic view that mothers have of their situation, the social and psychological support provided by the ethnomedical and religious systems and the social networks, and the devastating impact of the poverty and inadequate medical system.

Guatemalan plantation women similarly go to great lengths in the attempt to maintain the health of their families. In general, the picture one gets is of women using every means they possibly can to maintain the health of their family, despite the economic and cultural constraints and limits within which they must operate. They are neither passive nor fatalistic but are active participants who invest a tremendous amount of time, energy and money in

health-seeking activities. Much of the illness from which these families suffer is due to poverty conditions which could be ameliorated or prevented. The drain of resources expended by women and their families on health care could be avoided and instead channelled into other productive activities, which in the long run would lower the morbidity levels of these families and thus accelerate the health transition.

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## Chapter 40

# Women's roles, time allocation and health

Barry M. Popkin and Rebecca Miles Doan

There is growing recognition that women in less-developed areas, particularly the poor, face crucial trade-offs as they attempt to fulfil their economic, biological, and social roles at each stage in the life cycle. In the face of tremendous resource and time constraints as well as imperfect information, women daily make decisions that affect their children's and their own health and nutritional status. Yet we know very little about how they balance their various roles when they conflict, and what effect women's work and child-care decisions have on their child's health and nutritional status as well as on their own health (McGuire and Popkin, 1989).

During each stage of life, women have clear-cut biological, economic, and cultural roles; McGuire and Popkin (1989) have an expanded discussion on this topic. From birth, girls in some parts of the world receive less food, nurturing, and health care than boys, which affects their growth, development, and survival. Older girls experience conflicts over their use of time: instead of playing or attending school they are expected to work at home or on the family farm. As girls mature their household economic contribution rises, but cultural expectations for early marriage and childbearing are important.

After they leave childbearing behind, women often gain considerable respect, power, and economic control. Older women are freer to operate in markets, manage their own farmland, and make household decisions. In many patriarchal societies, widows may have access to productive resources only through their male relatives, but usually older widows have sufficient freedom to take part in market activities where younger females are secluded and veiled. The livelihoods open to aged women may barely allow them a subsistence wage. Because women have greater life expectancy than men, these issues are becoming increasingly important.

As women attempt to fulfil their economic, biological, and social roles, particularly during the childbearing years, these roles may come into conflict. In Table 1 we display some roles that may affect health and nutrition. Women with few resources are most likely to face difficult trade-offs. For them, changes in behaviour to enhance their contribution to one role often negatively affect other roles. Here we focus on balancing child-care responsibilities and market production. Young-child care in this context includes home production activities crucial to normal growth and maintenance in good health: feeding, bathing, dressing, stimulating, processing food and water, providing a sanitary household environment, and ensuring proper hygiene. Market production includes any work done for pay, and unpaid work in a family enterprise. We discuss to a much lesser extent evidence linking maternal market work and the woman's own nutritional status.

Time allocation studies give us a more accurate picture of the extent and nature of women's work than studies looking only at their labour force participation. By explicitly incorporating time as a factor influencing health, along with income, knowledge, and home technology, such studies can elucidate how socio-economic factors affect diet, health-care selection, and ultimately growth and survival of all household members.

Studies to date, however, fall short of expectation for several reasons. First, previous studies have too quickly assumed a direction of causality that runs from poverty to work to implications for child health. We raise the possibility that work and child-care decisions are made jointly and are thereby affected by the same factors, rather than one causing the other, and that these decisions may change over time as the baby grows older or infant or maternal health changes.

**Table 1**  
**Role conflicts in women's lives from puberty to menopause affecting health and nutrition**

Roles			Conflicts (constraining resource)	Possible adverse effects of conflicts
Biological	Economic	Cultural		
Pregnancy	Household production: food, fuel, water, child care, health	'Wife': deference to husband's decisions, sacrifice for him, obeying him, chastity	Household production vs. income generation (time, energy)	Maternal malnutrition and low birthweight
Lactation			Income generation vs. 'wife', 'mother' (time, breastmilk, energy, resources)	Poor child growth and development
Nurturing dependent young children				Maternal stress
Maintaining own health and nutrition	Income generation: on-farm labour, off-farm labour, entrepreneurship	'Daughter-in-law': obeying mother-in-law	Physical labour vs. pregnancy, lactation, health (energy)	Inadequate breastfeeding
		'Mother': responsibility for children's well-being, socialization of child including culturally appropriate dietary patterns	'Wife' vs. 'mother' (time, resources)	Closely spaced, high-parity births
			'Daughter-in-law' vs. 'mother' (time, authority)	External locus of control; learned helplessness
			'Mother' and 'wife' vs. family planning (social rewards, authority)	Low economic productivity
			'Self' vs. 'mother' and 'wife'	

Source: McGuire and Popkin, 1989.

Second, earlier studies do not adequately deal with the extent to which mothers may exchange purchased goods for their time or arrange for substitute care givers for their children, and implications of these factors for child health and nutrition. And these studies have not sufficiently explored the significance for maternal health and nutrition of differences in bargaining power in household time and resource allocation decisions.

Third, when linking market work to an increase in female power and status, past studies have not adequately investigated how such increases, if indeed they occur, are translated into increased consumption and health of the mother and/or her children.

In the following pages, we highlight key issues to consider when relating women's roles and time allocation to child health and nutrition, and the crucial methodological issues that affect our interpretation of extant research. We summarize some evidence leading to our current understanding of the way role conflicts and resource constraints may act together to



affect health adversely. We present some policy options for addressing the time-allocation constraints women face and, in turn, for improving the health of vulnerable groups. We end with a brief overview of research gaps and a summary of this discussion.

## The allocation of women's time, child care, and health

### Studies of women's time allocation

Time allocation studies have been conducted around the world. In Table 2 and Figure 1 we present the overall pattern of time people spend in market and home activities and the ratio of these activities by gender. These results represent studies with over 20 women as subjects for several low-income countries in Asia and Africa. Approaches for data collection vary widely from careful, precise observation to recall of one to seven days of activity.

**Table 2**

**Time allocation patterns of men and women (in hours and fractions of hours)**

Location <sup>a</sup>	N		Market production		Home production		Total		Ratio Women- men
	Men	Women	Men	Women	Men	Women	Men	Women	
<b>ASIA</b>									
<b>Bangladesh</b>									
Caldwell <i>et al.</i> (1980)									
urban	42	38	3.80	1.74	0.63	5.40	4.43	7.14	1.61
rural	48	36	6.97	4.73	0.34	6.20	7.31	10.93	1.49
Cain <i>et al.</i> (1979)	138	174	7.04	1.61	1.29	6.68	8.33	8.29	0.99
<b>Java</b>									
Nag <i>et al.</i> (1978)	31	33	7.90	5.94	0.72	5.14	8.62	11.08	1.28
<b>Nepal</b>									
Nag <i>et al.</i> (1978)	135	171	7.96	7.41	2.12	5.02	10.08	12.43	1.23
Acharya (1982)	192	hhs	5.81	4.62	1.70	6.19	7.51	10.81	1.44
<b>Philippines</b>									
King & Evenson (1983) <sup>b</sup>	99	hhs	6.85	2.57	1.30	7.42	8.15	9.99	1.22
<b>AFRICA</b>									
<b>Botswana</b>									
Mueller (1984)	957	hhs	3.70	1.80	1.43	4.38	5.13	6.18	1.20
<b>Central African Republic</b>									
BDPA (1960)	25 <sup>c</sup>		4.56	3.56	0.26	2.93	4.82	6.58	1.36
	30 <sup>d</sup>		5.02	3.67	0.14	3.36	5.16	7.03	1.36
<b>Ivory Coast</b>									
Bério (1984)	720	hhs	2.52	1.42	1.40	5.03	3.92	6.45	1.64
<b>Tanzania</b>									
Kamuzora (1980)	105	105	5.85	4.96	1.79	4.56	7.64	9.52	1.25

Note: hhs = households

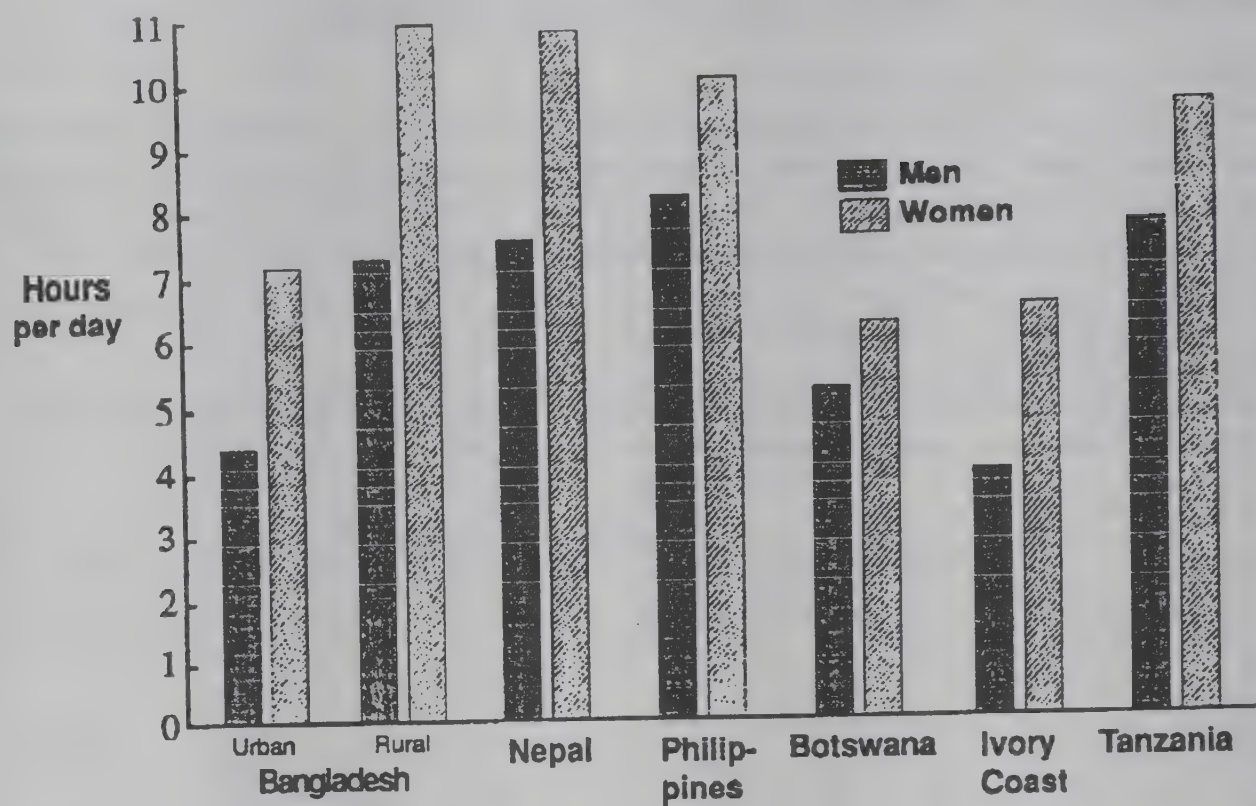
<sup>a</sup>Rural in all cases except Caldwell *et al.* in Bangladesh

<sup>b</sup>Joint activities were measured separately, thus total daily activities may exceed 24 hours

<sup>c</sup>Modernized village (in terms of agricultural technology and other signs of modernity)

<sup>d</sup>Traditional village

Figure 1  
Time allocation patterns of women and men



Source: McGuire and Popkin, 1989.

Market work includes all agricultural, wage, animal husbandry, and craft activities. Home production includes child care, food marketing and preparation, washing, cleaning, tending the sick, and other activities traditionally not remunerated. Leisure activities were excluded since their measurement depended on the length of daily observation in each survey. These studies focus on rural women. Little is known about relative urban-rural differences in women's and men's absolute time commitments.

Women spend their time in more total production than men. Although they spent less time in paid activities, sometimes considerably so, women spend disproportionately more time in home production than men. As a result of women's double work day, they usually spend at least as much time working as men do. Studies examining them separately find employed women often spend the same amount of time as men at market work (Evenson *et al.*, 1980; Popkin, 1980). As women increase market work, loss of domestic work and especially leisure are major changes in their time allocation patterns (Evenson, 1980).

If we disaggregate women's activities, we find the largest, most invariant category relates to food preparation (Table 3; Figure 2) (Ho, 1979). Women spend at least two hours a day preparing food for themselves and their families. Evenson *et al.* (1980) found that only when a woman's market activity exceeded six hours did she reduce her food preparation time, implying that the degree of participation rather than the activity *per se* is important.

As measured to date, child care consumes much less time than we might expect if we based our conclusions on studies from high-income countries (e.g., Szalai, 1972; Evenson, 1981). Women themselves often view child care as a residual, or leisure activity. Time studies systematically underestimate child care since it is usually simultaneous with other



household activities they record. Only prolonged, exclusive attention to children, understandably rare, is of adequate duration and intensity to be recorded as 'child care'.

**Table 3**

**Rural women's daily work patterns (in hours and fractions of hours)**

Location <sup>a</sup>	N	Home Production				Market Production	
		Child Care	Food activities	Fuel-water hauling	Other	Agric- culture	All other
<b>ASIA</b>							
<b>Bangladesh</b>							
Caldwell <i>et al.</i> (1980)							
urban	38	0.74	—	—	4.66	(1.74)	
rural	36	0.40	—	5.80		(4.73)	
Cain <i>et al.</i> (1979)	174	0.80	3.52	0.36	2.01	0.28	1.33
<b>Java</b>							
Nag <i>et al.</i> (1978)	33	1.02	2.71	0.07	1.33	1.44	4.49
<b>Nepal</b>							
Nag <i>et al.</i> (1978)	171	1.32	2.60	0.12	0.98	4.73	2.68
Acharya (1982)	192 hhs	0.06	3.02	1.05	2.06	2.74	1.88
<b>Pakistan</b>							
Anwar & Bilquees (1976)	63	0.50	3.25	0.50	3.75	3.75	2.75
<b>Philippines</b>							
King & Everson (1983)	99 hhs	2.06	2.06	0.07	3.23	0.85	1.72
Ho (1979)	488	1.58	3.44	—	3.31	2.01	
<b>AFRICA</b>							
<b>Botswana</b>							
Mueller (1984)	957 hhs	0.54	2.14 <sup>b</sup>	0.78	0.91	1.00	0.80
<b>Kenya</b>							
Hanger & Moris (1973)							
dry season	21		2.52	0.60	1.55	4.15	—
wet season	—	—	2.12	0.32	2.40	3.92	—
<b>Sudan</b>							
Fruzzetti (1985)	8 villages <sup>c</sup>	2.00	2.23	3.48	—	—	
<b>Tanzania</b>							
Kamuzora (1980)	105	—	3.09	—	1.47	4.94	0.01

Note: hhs = households

<sup>a</sup>Rural except for the Caldwell *et al.* study

<sup>b</sup>'Housework' includes other housework activities in addition to cooking

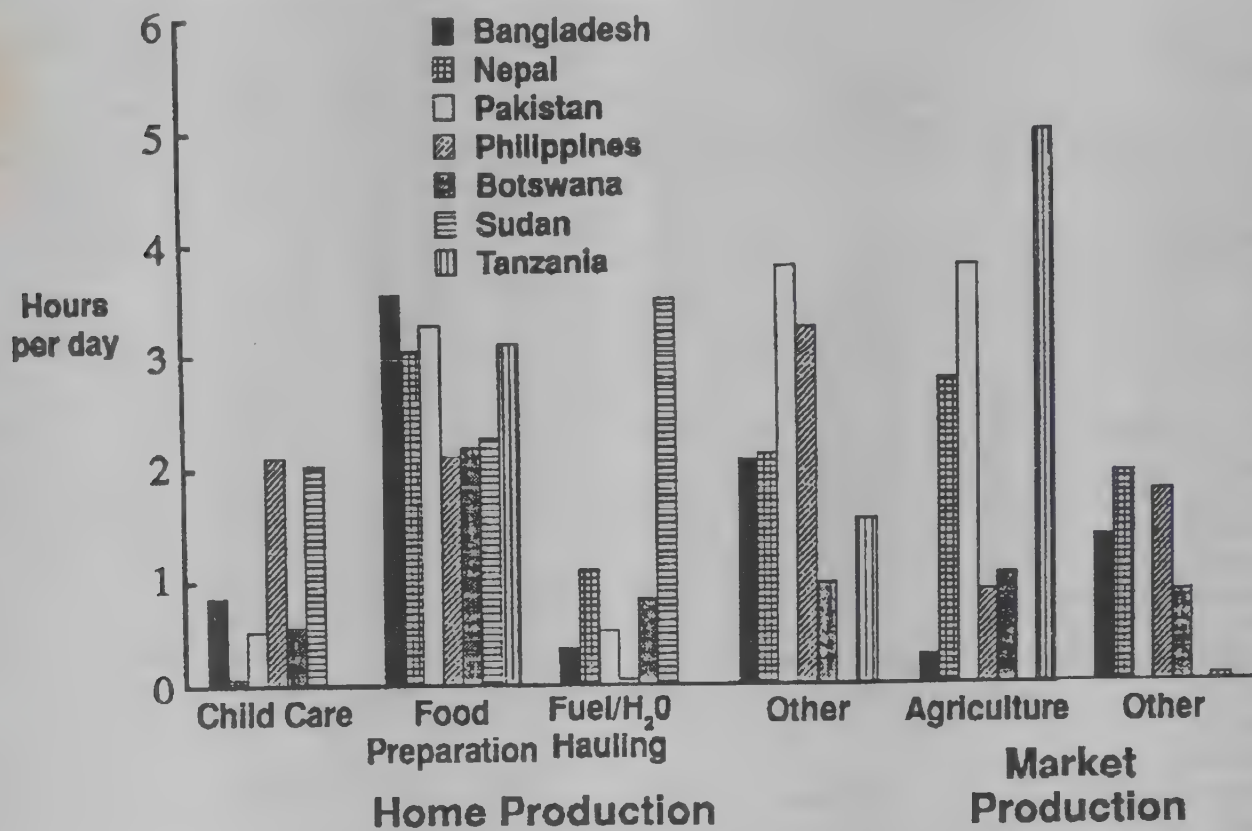
<sup>c</sup>Data are averaged over the eight villages

Studies of women's time allocation seldom consider its effect on the health of different household members or how changes in one activity relate to the full set of activities this person and others in the household undertake. They thereby fail to elucidate the pathways by which maternal role changes, particularly entering market work, affect child health and nutrition.

Various studies point to the important role of quantity and quality of time in determining health. Time is a basic resource contributing to health production. Women's time particularly affects directly the food-purchasing, preparing, and feeding processes. Time is needed for other preventive health care measures such as personal hygiene and household sanitation. Obtaining immunizations and medical care often requires inordinate

amounts of waiting time. Time also represents a key resource which can be exchanged for cash income or produce value in kind.

Figure 2  
Rural women's daily work pattern



Source: McGuire and Popkin, 1989.

**Amount of time matters**

Time allocation studies point out the disparities between women's time input compared to men in the same households and the extent to which household patterns change when a woman assumes market work. The overall level of active work of low-income women is tremendous. In general, women in low-income countries have much less leisure time than men, manage most home activities, and are also active in economic work. Time is therefore a major constraint. Inability or unwillingness to give time to such crucial home production and child-care activities as breastfeeding, control of faecal contamination, control of the pathogenicity of food, water processing, and personal hygiene practices may have a negative impact on the child.

Small changes in these practices can have large, important, and statistically significant effects on infant health. For example, a 10 per cent change in the probability of using poor excreta disposal methods could raise the proportion of six-month-old infants with diarrhoea by 5.4 per cent; increasing their likelihood of drinking high-quality water by 10 per cent would reduce their level of diarrhoea by 4.4 per cent (Cebu Study Team, 1988).

In this same longitudinal study of infant health, we find four-month-old urban infants fed breastmilk plus non-nutritive liquids (teas, water, broths) twice as likely to have diarrhoea as exclusively breastfed infants. Adding nutritive foods or liquids to the breastfed infant's diet makes this same urban infant 12.3 times more likely to have diarrhoea (Popkin



*et al.*, 1989). If the same urban four-month-old were fed no breastmilk, it would be 13 times as likely to have diarrhoea. These findings give convincing evidence for the health benefits of exclusive breastfeeding at early ages and suggest costs to the child when the mother does not breastfeed exclusively, especially if the residential environment is pathogenic.

Lack of time may also affect the extent to which an infant receives needed preventive and curative health services, including adequate maternal self-care. One study of health-seeking behaviour in 16 countries found that women most often make initial decisions about health care use (including self-care) except in crisis situations involving substantial costs, when the male household head becomes involved (Scrimshaw *et al.*, 1989). Health policy makers and society in general expect women to implement the child survival revolution by having children immunized four times during the first year of life; procuring or producing oral rehydration solutions and feeding them to a sick child many times during each day of every bout of diarrhoea; breastfeeding their babies on demand for six months to two years and processing and feeding proper weaning foods in frequent meals to small children at the appropriate ages; and bringing children under age five to a weight surveillance program every month.

Time costs of these activities, particularly the repetitive ones, may deter effective, sustained participation in health programs as well as income-generation (Leslie, 1989a). Few studies have been made of the role of time in using preventive health services such as immunizations (Akin *et al.*, 1985a, 1986). Research has usually found time costs an important determinant of health service demand (see Akin *et al.*, 1985a, and Leslie, 1989a). Women's time constraints have limited participation in a village-based vitamin A delivery system (Solon *et al.*, 1979, 1980). Time costs of prenatal care are the chief deterrent to use in the Philippines (Wong *et al.*, 1987).

### **Quality of time makes a difference**

Quality of time spent with children can affect health directly. This research began with the human and animal studies on maternal deprivation: the failure-to-thrive infant with significant growth and developmental failures was found too often to be neglected (Harlow and Zimmerman, 1959; Newton and Levine, 1968). In low-income countries, there were similar findings (Cravioto *et al.*, 1966; Cravioto and DeLicardie, 1968; Pollitt *et al.*, 1978).

Torún and colleagues (1976) found in an important early study in Guatemala that active play with malnourished preschoolers cut in half the time required for nutritional rehabilitation. Viteri and Torún (1981) in a series of studies show that changes in physical activities in humans and animals are directly associated with the efficiency of food use. Monckeberg (1977, 1986) found similar results in Chile where infants given physical exercise (about 30 minutes twice a day) and sensory stimulation (for the same frequency) along with food were compared with infants with similar characteristics but no psychomotor or affective stimulation. Weight gain differences were dramatic and significant after 50 days of treatment, particularly for infants under six months. Research shows that increased activity in rats increases their metabolic efficiency and hence, is related to increased weight gain (Mittleman and Valenstein, 1984). In addition, researchers have found that increased activity increases growth hormone release in humans (Field, 1986); the impact on growth is unclear except for more vulnerable pre-term and very low-birthweight infants.

In a major revolution in research on this topic in the past few years, researchers have shown that actions such as touch have a direct effect on biochemical processes involved in growth. Rat studies show that active tactile stimulation is necessary to the physiology of

normal growth, restricting such stimulation will retard growth, and normal growth can be restored by providing stimulation (see Schanberg and Field, 1987).

Results of infant studies are not as consistent as are the animal studies; however, none shows that stimulation does not matter (cf. Schanberg and Field, 1987). Rather, they find different stimulation-growth rate relationships (Field, 1986). The most sophisticated and controlled research has been conducted in pre-term infants (Field, 1986; Field *et al.*, 1986; Scafidi *et al.*, 1986). Massaged or touched infants did not eat more than other infants but they gained more weight; as with the rat studies, this phenomenon is attributed to changes in metabolism, and these effects persist through early infancy. The pre-term infant studies push forward considerably the weaker field studies on failure-to-thrive infants conducted in low-income countries (e.g., Pollitt *et al.*, 1978; Alvarez *et al.*, 1982) and provide a crucial direct link between maternal time inputs and infant growth. This research indicates the importance of including measures of time during which the child is being cuddled, carried, or played with, and exploring whether there are differences between infants who accompany their mothers to work under varying conditions and those who are cared for by their mother at home, and between different types of substitute care-givers (Myers, 1988).

Changes in nutrition can affect the type and amount of physical activity and stimulation a child receives. An important reciprocal relationship operates through the child's interest and activities on the interaction care-takers provide. Increased child activity, in turn, draws additional psychomotor and psychosocial stimulation from care-takers (Chavez and Martinez, 1975).

## Work and health

### Findings regarding infant health

An extensive literature relates maternal market work activities to infant nutrition. Different studies, however, are difficult to compare because of serious methodological weaknesses in some, and different measures used for key factors: infant nutrition and work (see Leslie, 1989b). Findings, not surprisingly, are inconsistent; some generalizations can be made based on studies to date. This research focuses solely on nutritional outcomes; child morbidity and survival have not been considered in the literature available to us.

We separate the studies into those linking the mother's work with infant feeding and those relating her work to infant nutritional status. In the former case, most of the focus has been on breastfeeding, for which mother-substitutes are rarely used. Most of this research has found that occupational background or current employment has little association with breastfeeding prevalence; however, the association with breastfeeding duration is often significant. A few studies found that women who work while breastfeeding are likely to start mixed feeding earlier than women who do not work (Soekirman 1983; Akin *et al.*, 1985b; Vial de Valdes *et al.*, 1986; O'Gara, 1989). In general, few researchers have examined either the timing or the quality of the supplementation pattern: crucial dimensions of infant feeding.

Studies of women's work and child nutritional status are equally difficult to compare and findings are inconsistent (see Huffman, 1987; Leslie, 1989b) though several generalizations can be made. Clearly it is not a mother's work *per se* that affects the child's nutritional status, rather it is her conditions of employment and her earnings level that matter. Proportion of time spent working is often analysed (Kumar, 1977; Popkin, 1983; Soekirman, 1983, 1985); several studies also analyse the effect of working at home and away from home (Popkin and Solon, 1976; Popkin, 1980, 1983; Vial de Valdes *et al.*, 1986; Tucker



and Sanjur, 1988); but few look at the effect of substitute care-givers. Exceptions include Engle (1986a, b), Vial de Valdes *et al.* (1986) and Tucker and Sanjur (1988).

No studies precisely link maternal labour force patterns with proximate determinants of individual infant health, and through them, infant health itself. Popkin (1980, 1983) completed pieces of this linkage using direct observation of child-care time by mothers and surrogates and direct weighing of infant dietary intake. He could not, however, link the timing of labour market decisions with child-care arrangements made for each preschooler and subsequent health outcomes.

In one study, Popkin related average child care, dietary child-care time, and nutritional status for all preschoolers with maternal labour force patterns. Maternal labour force participation was associated only with reduced maternal leisure and significant increases in older siblings' total child-care time. At the same time, average preschooler caloric intake increased significantly. In turn, the increased, predicted sibling child-care time provided was associated with reduced weight and height for age. He found the opposite, a positive significant association, for mother's predicted child-care time and preschooler height for age, implying that reductions in maternal child-care time will adversely affect child nutrition.

All studies to date (including work in progress, see Bennett, 1988) treat the work decision as exogenous to infant-feeding and health-care use decisions, and to all the other related intermediate determinants of infant nutritional and health status, though both directions of causality are possible.

An alternative to analysing labour market decisions is a focus on the value of the mother's time. Increases in maternal value of time in a study of rural Filipino children are associated with changes in their relative caloric allocation (Senauer *et al.*, 1988). This approach has the advantage of developing an opportunity cost for women not in the formal labour force.

### **The decision-making process: unravelling cause and effect**

Researchers have generally assumed women's market work was exogenous to infant-feeding and other child-care decision-making processes. Researchers have ignored many crucial issues, including the sequence of maternal work and child-care outcomes and the nature of the decision-making processes concerning the work and child-feeding decisions. If women decide jointly to work and cease breastfeeding (or other feeding choices), if women go to work because they need to try to improve poor child nutrition, or if women who work away from home have less concern for infant well-being than those who select jobs compatible with child care, which are lower paying, then poorer child nutrition would be associated with women's work, but it would not be women's work itself which had caused these relationships.

Or, if ill-health and other perceptions of child frailty lead to child neglect, the hypothesized direction of causality may be reversed. Some anthropologists have found that children judged too weak or vulnerable to survive are systematically deprived of goods and time inputs (Scheper-Hughes, 1987); in this case, a researcher looking for effects of employment would come to the wrong conclusions.

If household structures and other household time-allocation decisions change (e.g., older siblings drop out of school to care for younger ones), these relationships may need to be seen as endogenous to the household decision-making process, and underlying determinants may need to be examined.

Ascertaining the right direction of causality may be important not only in the decision to work and the type of job but also in overall household time allocation. For example, poor health of the child's father, especially if he is the sole earner, may lead the mother to return to work, and perhaps force her into a higher-paying job, incompatible with infant feeding and child care. Household time-allocation decisions are highly interdependent and failure to consider them may lead to misleading or incorrect conclusions.

Mothers may recognize health threats or health-related problems and change their time allocation and other behaviour to reduce risks they perceive from these threats. Most research on this topic assumes mothers are passive acceptors of whatever health threats they perceive.

These issues must be considered before we can understand if and how women's economic roles conflict with child-care roles. They must also be considered in examining the broad sets of conclusions found by numerous studies on this topic (cf. Myers and Indriso, 1987; Leslie, 1989b).

### **Goods-for-time substitutes**

The effect of the mother's work depends partly on the purchasing power of her earnings. A goods-for-time substitution can take place when additional income from maternal work is used to purchase various goods. The price and quality of market goods (e.g., high-quality weaning food) that can substitute for the mother's time in preparing supplemental foods and breastfeeding, or can affect the lack of skill of mother substitutes, are important. One period in child development when quality of the goods substitutes is crucial comes during the 4-10 month transition from a predominantly milk-based diet to a more varied and, one hopes, nutrient-dense diet (Rowland, 1986).

There is much literature on availability and pricing of supplemental food, but little on the economic dimension (Popkin and Latham, 1973; Anderson *et al.*, 1981; Knudsen, 1981), particularly the trade-off of mother's time for purchased goods. Popkin *et al.* (1986) reviewed research on the money cost and time trade-offs between feeding breastmilk and substitutes. Numerous other purchased services serve as substitutes. While formal out-of-the-house child-care arrangements are used, in a few low-income countries (e.g., China) paid helpers predominate. These helpers may be relatives, trained care-takers, or servants. No descriptive studies explore the health consequences of paid child-care providers (e.g., Joekes, 1989).

The effect of a mother's paid work also depends in large part on the quality of care that substitutes provide, be they paid or unpaid, as we show below. The child care and home time others provide can allow the mother more time for either home production or market economy-related activities. A few descriptive studies explore the health consequences of the care that mother substitutes provide (Shah *et al.*, 1979; Popkin, 1980; Hull, 1985; Joekes, 1989). The hypothesis that children of women in the labour market receive poor quality child care is essentially untested (Myers and Indriso, 1987).

For one process, breastfeeding, goods and time substitutes are rarely used or available. But time and goods substitutes could provide the mother with time to breast-feed by reducing her time at other activities.

### **Child care, job compatibility, and substitute care-givers**

One way women cope when their need or desire to engage in market work conflicts with child-care duty is to seek jobs that let them to do both: jobs they perceive as compatible.



The extent to which the selection of compatible jobs is a matter of choice or whether most occupations can be flexible if the mother so desires, is unclear. Little empirical research focuses on this topic (see Leslie, 1989a) and yet the health implications under the two sets of circumstances may be significantly different.

For research purposes, the definition of compatibility depends on the outcome of interest. If one's interest is in the effect of maternal work on infant feeding, or the effect of infant-feeding patterns on a mother's work situation, a compatible job would be one that allowed the mother to breastfeed. The extent to which she could breastfeed, exclusively or only at night, and the working conditions associated with it (short or flexible hours, nursing breaks, working at home) would be matters for empirical investigation (see Marshall, 1984).

To analyse the effect of maternal work on child growth and morbidity, or of the child's health on a mother's work situation at a later time, a compatible job would be one that lets her care directly for her child or supervise its care while working. To capture the quality-of-time element mentioned before, it would be important to measure whether or not the caregiver was covering the key dimensions of child care.

Assumptions are often made about the compatibility of different occupations but little empirical research has been done on the subject: exceptions are DaVanzo and Lee (1983) and Benería and Roldán, (1987). In an early study of the relationship between mother's work and infant feeding, Nerlove (1974:207) defined a compatible job as one in which 'the participant is not obliged to be far from home; the tasks are relatively monotonous and do not require rapt concentration; and the work is not dangerous, can be performed in spite of interruptions, and is easily resumed once interrupted'. All work done in or near a mother's home is generally thought to have these characteristics although Benería and Roldán (1987) found that some domestic piecework was disrupted by or dangerous to young children close at hand. Agricultural work is generally thought to be compatible with child care because of the supposed flexibility of schedules. DaVanzo and Lee (1983), however, found that few mothers involved in agriculture take their children with them to work. Several studies also point out that the time when rural women's work load in farming is heaviest corresponds to the season when children are more likely to be sick and need greater care (Chambers, 1982; Joekes, 1989).

Time-allocation studies tell us little about child care, partly because of loose conceptual definition. Care of the young child in its broadest sense includes feeding, bathing, changing diapers, dressing, stimulating, food and water processing, providing a sanitary household environment, and ensuring proper personal hygiene. However, in time-allocation studies, researchers and mothers tend to see child care as a residual category.

We are currently involved in a longitudinal analysis of mothers' joint work and child-care decisions and their implications for child well-being. From longitudinal data on about 3,000 postpartum mothers in Cebu province, Philippines, preliminary analyses let us draw some conclusions about what makes a work situation compatible with child care. We correlated the mother's report of whether or not she can care for her child while working, take it with her to work, or come home to feed it with various characteristics of her work situation: location, travel time, hours worked, and whether she is paid a wage, works on a time basis, does piece work, or is self-employed. Although as expected, there is much variability that cannot be explained by these structural elements, we can isolate several dimensions of job compatibility (Doan and Popkin, 1989).

With a few exceptions, all mothers who work at home report that they can care for their child while working. Nevertheless, only 49 per cent of those are unassisted; most of the rest get help from older children or spouses. For 18 per cent, the other care-giver plays the primary role for the child. In this sample, agricultural work appears to be quite compatible with infant feeding and child care. A larger percentage of farm owners and tenants report being able to come home to feed their infants than mothers in other occupations; 12 per cent of tenant mothers report that they can take their infants with them to work, a percentage similar to mothers who are self-employed saleswomen and unpaid family workers, both working outside the home (Table 4).

**Table 4**  
**Percentage distribution of mothers by extent of job compatibility and work status**

Work status	Cannot care for child while working	Can sometimes take child to work	Can come home to feed child	Can always take child to work	Works at home	%	N
Farm owners	0	0	100	0	0		6
Farm tenants	22	5	47	12	2	100	52
Professionals/ managers	71	8	15	2	6	100	54
Wage workers- time basis	71	5	18	3	4	100	159
Self-employed salespeople	35	4	17	10	33	100	340
Self-employed labourers and pieceworkers	30	5	33	6	26	100	125
Unpaid family workers	28	10	7	12	43	100	100

A significantly smaller proportion of wage workers paid on a time basis find their jobs compatible with child care (Table 4). We compared hourly wage workers to other away-from-home workers paid on a piece basis or self-employed. This finding supports an assumption often made but rarely empirically verified (Anker and Hein, 1986). The rigid hours and working regimes of formal-sector employment are thought to be less conducive to caring for a child while working, or to going home to feed. Among women in the formal sector, Date-bah (1986) found that only mothers with managerial status and a private car could go home to breastfeed their infants. In the Cebu sample, no mothers held such high-status wage jobs.

Our findings also show that the hours a mother works for pay and the relative compatibility of her job are associated with what type of child-care arrangements she makes. Mothers who work long hours in compatible jobs are less likely to be the primary child-care giver than mothers who work shorter hours in compatible jobs and ones who do not work for pay. Mothers working long hours in incompatible jobs are likely to rely on other relatives and servants for child care, rather than their spouses and children.

Even after considering differences attributable to working conditions, the effect of mother's employment on child health varies according to the extent to which she can



arrange for effective substitute care-givers, and her ability to purchase goods to replace her more time-intensive home-produced ones. The presence of potential substitutes in the household is often used as a rough indicator of a mother's child-care options. But these individuals may not be fit to care for an infant (e.g., a resident grandmother may need care herself) or may have conflicting demands on their time (e.g., schooling for older children). Women may also change their living arrangements to increase their options, or seek help from friends and relatives outside the household. Being able to mobilize child care, particularly if it is unpaid, outside the household may indicate that the mother actively participates in a social network she can depend on in times of crisis. Studies focusing only on time allocation of household members (most studies to date) fail to measure these inputs of non-household members. We plan to analyse the effect of different types of substitute care-givers on infant feeding and child health and the sequence of maternal work and child-care decisions.

### **Status, work, and the income effect**

While there is an abundance of hypotheses on the effects of female employment on women's status and power, little empirical work links these results to differences in diets, health-care patterns, and other important determinants of women's and children's health. The few studies on intra-household food allocation show that women get less food than men absolutely and relative to their nutritional needs (Carlioni, 1981; Hamilton *et al.*, 1984; Haaga and Mason, 1987). The hypothesis is that a woman's status determines her bargaining power in household allocation of time and resources. To the extent that a job increases her status vis-a-vis men, we would expect her health to improve.

There is some proof that the mother's income goes more directly to her child than does the father's (Guyer, 1980; Safilios-Rothschild, 1980). One of the better studies found that as the value of the mother's time increased, her relative caloric allocation in the household improved (Senauer *et al.*, 1988). In the societies studied, women's roles involved them in food buying while men's roles involved them in buying other types of goods and services. Not only do women provide from their earnings about a third of the money spent on food, but they buy over half of the non-child food (based on calories) and produce more than three-quarters of the home-produced food supply (Lunven, 1983). There is a need to test how much one can generalize and say that the mother will do what is best for the child if she is free to (Bennett, 1988).

Research on women in development has focused recently on a crucial issue: the effect of women's market participation and earnings on household and intra-household nutrition. Market work can affect women's social roles and status, control over household resource and food expenditures, and ability to fulfil their caloric needs. It also affects their time available for food production and other home production activities. If a woman's income represents an increase in household income and is enough to cover mother substitutes with some to spare, her income may improve child health and nutrition. Several studies identify such an association (Soekirman, 1983; Senauer *et al.*, 1988; Tucker and Sanjur, 1988). Increases in the mother's wage, however, are not necessarily reflected in increased total family income, since she may work to compensate for her husband's loss of income, or she may be the sole economic supporter of her family (Engle, 1986b).

A woman's access to and autonomy in using her own income or total household income and assets is expected to be a major determinant of her diet. This autonomy influences her options to buy and consume food in and outside the household or to trade food within a

social or marketing network. It also influences her ability to seek paid child-care substitutes, if available, and if she prefers them to whatever unpaid care she may be able to mobilize.

Within some cultures, the woman's contribution to the household income is a direct measure of her economic value. Some argue that for women, economic power is the most important determinant of their relative equality and therefore their freedom in decision making, life options, and control of resources such as food (Sacks, 1970; Blumberg, 1976). One consequence of urbanization and rural-urban migration seems to be that women increasingly lose their economically productive roles within the household. Often they are not allowed to work outside the home, as men are (Boserup, 1970; Giele and Smock, 1977). There is little evidence to indicate the effects of this situation on women's food intake or their control over food resources.

Labour force participation affects the woman as well as her family. On one hand, her dietary requirements increase, particularly in rural areas among the poor who more often engage in strenuous physical labour which increases their energy needs. They have fewer household assets such as piped water and gas or kerosene stoves which save time and energy. They cannot afford labour-saving purchases such as partly or totally processed foods or child-care substitutes. Energy expenditures and needs are thus closely intertwined with the income and time-allocation decisions.

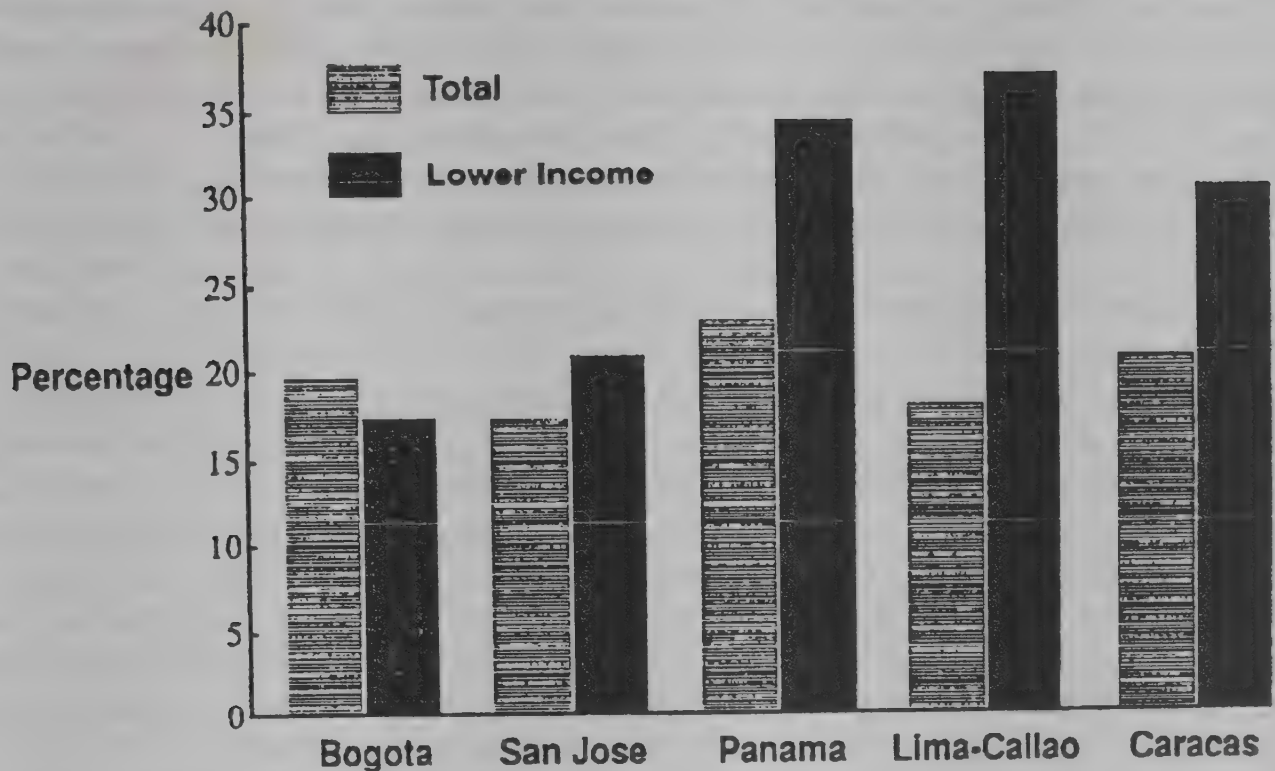
A related topic deserving attention in its own right is that of female-headed households. Women are felt to be over-represented among the poor although little empirical evidence exists (Birdsall and McGreevey, 1983). Nearly a third of households in low-income countries may be headed by women (Buvinic *et al.*, 1978). Dissolution of marital or consensual unions accounts for some of this situation but short- and long-term migration and impoverishment represent growing sources of *de facto* female headship (Youssef and Hetler, 1984). Female heads are more prevalent among the urban and rural poor (Seager and Olson, 1986; White *et al.*, 1986). In Figure 3 Latin American data show that, except for Bogota, households that women head are much more prevalent among lower income groups where the proportion of women heads ranges from 22 per cent for San Jose to 38 per cent for Lima and Callao. The phenomenon is common to all of Latin America. In studies made in Botswana, Ghana, Kenya, Lesotho, and Sierra Leone, women head over 40 per cent of rural households (Youssef and Hetler, 1984). Youssef and Hetler consider that there may recently have been an increase in the rate of women heading households in rural areas.

Implications for health of increasing numbers of female-headed households have yet to be explored. One study found that when women head households, their children are better off regardless of income or wealth (Kumar, 1985). Sufficient evidence shows that female-headed households are different enough from male-headed households to warrant further study (Merrick and Schmink, 1983). Implications of female headship and autonomy on health should be explored.



**Figure 3**

Percentage of households headed by women among all households in selected cities, by income



Source: United Nations (1985), Table 10

### Policy options

The length of a woman's day cannot be increased, but increased productivity can help women increase the product of their work effort or decrease the time needed for some home and market activities. With this added output or time, women can provide better household health-related goods and services.

Making these changes requires a set of interventions which can reduce the constraints women face to improving health and nutrition (see McGuire and Popkin, 1989). Interventions include increasing women's income and their control over economic resources; reducing the child-care requirements faced by women; increasing women's household productivity; and directly improving women's health.

The logic of these interventions is as follows. Women's income generation leads to a greater control over income which leads to expenditure patterns favouring nutrition. On the other hand, women's wage work diverts time from child care and other household production to money-making activities. The net impact of increased income and decreased maternal child-care time is a function of the quality of substitute child care. Hence, adequate child care is an important intermediary between women's economic participation and child welfare. Women's home production activities require large amounts of time which might be better spent on economic opportunities, child care, or rest.

Poor maternal health and nutrition diminishes women's strength and efficiency in market, household, and child-care spheres and adversely affects reproductive outcomes.

Improving women's nutritional status should increase their total productivity (McGuire and Popkin, 1989:29).

The child-care burden is of recent concern (Lunven, 1983; Myers and Indriso, 1987; Joekes, 1989). Third World women rely mainly on the family and neighbours to provide such care, which rarely is good for both mothers and children. Sibling care is often bad for child health and nutrition (e.g., Shah *et al.*, 1979). Child care by children is widespread but only recently have programs been developed to focus on children as child-care givers such as the UNICEF child-to-child programs (Landers, 1988; Otaala *et al.*, 1988).

Neither programs nor research have focused much on child care but there are examples for Asia of excellent mobile creches to aid women construction workers (Evans, 1985), of community built and run child care in Salvador, Brazil (Rocha *et al.*, 1983), and of other seasonal or co-operative-based year-round programs in Africa (cf. Myers and Indriso, 1987; Myers, 1988).

There has been much more interest in developing 'appropriate technologies' to increase women's efficiency in home production, such as developing mills to reduce the time spent winnowing, grinding, and preparing grains, and promoting home-based technologies to reduce the need for cooking and fetching water. Developing low-cost, rapidly prepared weaning foods and reducing time spent procuring and preparing household food, for example, promoting bakery bread, dried soups, pasta products, and street foods, are options (see McGuire and Popkin, 1989). As the value of women's time rises, we find shifts from using time-intensive food products to the use of time-saving ones such as rice in West Africa or bread in Sri Lanka (cf. Senauer *et al.*, 1986).

Much less has been done to improve women's health and nutrition directly. Historically we have focused on women's health as a way of improving their reproductive functions, showing little concern for their own needs (Hamilton *et al.*, 1984). More recent efforts to improve women's health – 'the safe motherhood effort' – focus more on reducing childbirth fatality than on making women healthier throughout life. There is scant research on ways to persuade women to use health and nutrition services to improve their own health. Studies suggest that if we can meet women's financial and time constraints and make services fit their beliefs and practices, use will increase.

The bottom line is that interventions such as those we have described must be implemented in a complementary manner. Women cannot procure child care or household technologies without additional income (or loans); and they need time to avail themselves of new health and nutritional care.

## Research needs

Literature on the relationship between women's participation in economic activity and health provides some reasonably consistent findings; there are, however, some serious gaps in the issues studied and important flaws in existing work. Moreover, little serious work has explored interventions to address the roles and time-allocation conflicts that women face. Important information gaps and research needs exist.

*Maternal role changes.* We need more information on women's role changes and how they affect family time allocations and functions. In particular, we need to understand changes resulting from a variety of positive economic changes: income-enhancing, such as entrance to market employment or occupational distribution shifts; and negative economic changes: real-income-reducing shifts such as those related to structural adjustments.



*Maternal and child health and maternal role changes.* We need to study longitudinally changes in maternal roles and time-allocation patterns, particularly as they affect changes in child care and other health-related behaviours; and their subsequent health consequences. We need research designs which measure various maternal market and home roles at different times and link these changes in a sequential and causal manner to maternal and child health and also to the health of other family members.

*Child care.* Studies on the impact of alternate child-care arrangements on maternal and household roles, time allocation, and child health are needed.

*Maternal household productivity.* Little is known about how changes in household technology and knowledge shift household production and alleviate some of the constraints faced by women.

*Modelling and estimation.* The approach needed to unravel the relationship between maternal role changes, household time allocation, and maternal and child health needs careful reconsideration. A human resource economics framework can be used to capture crucial elements.

Foremost is the need to view the household not only as a consumer but also as producer of consumables such as good health through the use of market goods, own time, home assets and technology, and own skills (human capital). This broad framework lets us examine household decision making and its consequences; it involves consideration of a number of factors:

(1) *Consumables.* Utility is obtained from home-produced commodities without market prices. Good health is a prime example.

(2) *Household utility.* The traditional assumption of a single household utility function can be relaxed to address intra-household relationships. Household members may have conflicting interests and priorities and, more specifically, the woman's bargaining power may change as a result of her income-generation.

(3) *Full-income constraint.* The decision-making unit is constrained by its total resources, including earned and unearned financial and time resources. For example, if market goods prices are the same for two households for a specific commodity but the households' value of time varies, we will find different consumption patterns.

(4) *Home-production process.* Home-produced goods or consumables are essentially manufactured within the household. These processes involve activities which combine the time of the mother and other household members with purchased market goods. The extent of available home technology and the home management skill of household members influence the outcome. Home technology includes cooking utensils, stoves, food processing-related items, and various health-related products such as toilets. These production conditions affect the quantity of household goods available and the choice of goods. Shifts in household technology obviously affect the selection of nutrition and health-related inputs. A mother's home management ability is affected by her education and confidence in her ability. Her skills in selecting and managing mother substitutes, her own time, and her goods-for-time substitutes are basic elements.

(5) *Measurement and estimation considerations.* Clearly one cannot measure all aspects of individual health, particularly the unique strengths and frailties of each child and adult. While measuring this 'heterogeneity' of individuals is impossible, it is important to take it into account to avoid crucial biases in estimating the relationships studied (Rosenzweig and Schultz, 1983; Cebu Study Team, 1988). Similarly, mothers do not make

simple decisions about their labour force and time-allocation behaviour without considering infant-feeding and health issues. Moreover, when they perceive or see threats to their child's health, mothers take measures to reduce their risks from these threats so many of the behaviours we need to model are endogenous to the health-production process studied. Analytical procedures must be adapted to obtain unbiased estimates of impact. Cause and effect are very difficult to unravel in such situations. An underlying decision-making process and set of factors may explain both outcomes. The use of models which include the sequence of behavioural changes and their subsequent impact is essential in this respect (cf. Cebu Study Team, 1988, 1989).

## Summary

Research on relationships among maternal role changes, particularly as they relate to entering the market labour force, buying household goods, time-allocation patterns, and the production of health, have critical weaknesses. First, measurement of work and health outcomes has generally been imprecise, and the timing of various time-supply decisions and health outcomes has rarely been considered. Labour supply decisions have often been ignored and the extent, amount, and location of market work have been taken as givens. Second, little research has examined exactly how labour-supply decisions affect or are associated with household demand for other goods or services or with intra-household allocation of various resources. In reality, the major model of analysis has been to take the labour market decision as a prior given and to look at its effects on health while controlling in some instances for possible confounders (e.g., Bennett, 1988). Issues of endogeneity and the jointness of the decision-making process have been ignored; Blau (1984, 1986) offers a rare exception.

Women play crucial roles in the labour force and household production. Changes in the extent and nature of labour force activity are bound to occur with the rapid technological change, spatial movement (e.g., urbanization), and other societal forces of change affecting their lives. An understanding of the consequences of these changes on women's time-allocation patterns as well as the health-related behaviours and various health outcomes requires a more careful, and perhaps longer-term, research strategy.

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## Chapter 41

# Strategies of health seeking and structures of social support in Central and Southern Africa

John M. Janzen

### Introduction

The African continent, by world health statistics, has the highest death rates and fertility rates. Although major progress has been made this century in bringing mortality rates down, and in some regions infant mortality rates have been brought down to less than 100 per thousand, there is as yet little evidence anywhere of the decline in fertility that has in many regions accompanied these two transitions. Indeed, evidence is emerging of a 20th century rise in fertility rates.

Scholars are divided on the extent to which this particular profile of death, birth, and disease is unique to Africa and whether the continent therefore may experience a unique transition to health. Gregory and Piche (1985) represent those who suggest that Africa's distinctive history of slavery, colonialism, and capitalism has maintained distinctive, extremely exploitative, economic institutions that make the transition very difficult, as many people's first concern is the survival logic within their own households. Others suggest that Africa's social and cultural system, its values, are unique, and that the lineage base of the continent's society (Goody, 1976) leads to an emphasis upon distinctive patterns of sexuality and of fertility (Caldwell *et al.*, 1989). Others note that there is evidence of lower fertility in the precolonial past due to child-spacing practices undone by colonial policies (Hunt, 1988), as well as areas of severe underpopulation because of historic infertility (S. Gaisie, personal communication, 1989). The assumption of most observers is that the same transformations which have brought down mortality, morbidity and fertility in the societies of Europe, the Americas, and Asia will act in Africa. Indeed, these writers suggest that mortality and morbidity, and childhood survival rates, have improved markedly in this century.

The role of African medicine in all this has not been extensively discussed, except to note that it is there as the major health care tradition. This paper examines selected but influential aspects of African medicine, and the role they may play in the health transition, in orienting the approach taken to it, or perhaps in impeding its occurrence. I wish to examine organizational modes and values, rather than the content, of African medicine. This is important in the discussion of the health transition in Africa because African medicine not only arises out of the values and perspectives of African culture, it remains the dominant form of health care on the continent, and may be in a unique and advantageous position to promote the health transition. But what is African medicine?

### African medicine, a historical and thematic sketch

I wish to emphasize that I am writing about 'African medicine' rather than 'traditional medicine'. 'Traditional' conveys a burden of connotations of static, irrational, collective, and backward. The term 'traditional' came into use with 'modernization' theory in the 1950s, succeeding the evolutionist notion of 'the primitive'. Modernization theory

suggested that 'the traditional' was destined to progress toward the modern, i.e., become individualized, rationalized, and dynamic. To speak of 'traditional medicine' in Africa thus suggests that there is a monolithic, somewhat inchoate mass of customs and usages of healing, ignoring the self-conscious traditions or schools of healing that have been developed in the continent at various times in the past, or have been introduced from the outside.

In recent writing (Janzen, 1989; 1989/90a) I, with others, have stressed the historical character of African medicine, and the need to understand therapeutics at any place and time in a manner similar to the way we would look at Asian or European medicine. Examples of this historical perspective of African medicine would begin with the medicine of Ancient Egypt, itself built upon African foundations; Greek medicine as introduced in Alexandria, Carthage, and elsewhere in classical antiquity, spread and popularized into the Mediterranean and inland regions; Arab or Islamic medicine, itself a variant of Greek and Persian medicine, spreading with trade and Islam; Medicine of the Prophet, a second Islamic medicine, emphasizing prayer, purification, and a combination of social reform and hygienic principles; colonial medical traditions that derive either from Greek medicine, or from the post-Enlightenment modern medicine; also public health. These latter were advanced either by the colonial state or by Christian missions. Although of foreign introduction, these have all become African in the same sense that medicine developed in ancient Greece became European.

Indigenous African medicine, which has evolved and adapted to the foreign introduced techniques and perspectives, includes a range of 'empirical' interventions such as midwifery, bonesetting, and specific treatments for such ailments as fevers, rheumatism, intestinal disorders, parasites, lactation deficiency, aches of various kinds, epilepsy, menstrual disorders, and more. Medications are based on a wide array of mineral, animal, and especially vegetable substances reflecting desert, savanna, and rain-forest environments. These empirical therapies and medicines, as well as the foreign-introduced therapies, are brought to bear upon afflictions depending on how these are understood or interpreted. When a *nganga* adopts a stethoscope, or takes blood samples and examines them under a microscope, then uses herbal infusions to treat the condition, this too is African medicine.

More distinctive, perhaps more pervasive, than particular techniques and medicines are the high-level perspectives in African medical thought governing the nature of the person and the relationships between society and the created universe. Very widely, a distinction is made in Africa between matter-of-fact or natural afflictions, for which the appropriate treatment is offered from whatever tradition, and affliction deemed to be the cause of breach of social norms, offence against spiritual agents, or the role of malefic human or non-human agents against the victim. In Central and Southern Africa, in the so-called Bantu-speaking societies, the former category is often associated with God, creator of the orderly natural world, the latter with humans, evil, chaotic, and threatening. Accordingly, as the second category is held to be the cause of an affliction, more powerful, ritualized therapies are consulted to counteract the human agent, to rectify the social ill, or to offset the spiritual power working against the victim or victims. In this calculus of types of cause categories and medicine traditions, which may appear to be a maze of possibilities toward health and wholeness, divination is frequently consulted to clarify the



lay opinion, to reach a consensus within the family or lineage, and to seek guidance as to how to deal with the affliction.

### **Health-seeking strategies (I): The domestic community**

The panoply of aetiological categories and therapeutic options available in many settings in Africa calls for an approach to health seeking that is sophisticated and discerning. Furthermore, where the health of individuals is concerned, and individuals are usually seen as members of a descent community, this community has the responsibility to care for the health of its members, especially its dependants.

Although there is no systematic continent-wide understanding of the full implication of African descent and community upon health seeking, an interpretation can now be suggested on the basis of numerous studies of this process (Chavunduka, 1978 for the Shona of Zimbabwe; Janzen, 1978 for the Kongo of Lower Zaire; Auge, 1985 for West Africa; Good, 1988 for the Kamba of Kenya; M. Lambeck, personal communication, 1988 for the island of Mayotte and Botswana). In Lower Zaire, in a series of extended case studies of health seeking (Janzen, 1987), lineage and other close kin and acquaintances took charge of serious cases, diagnosing the cause and consequence of the affliction, making choices of therapeutic steps to be taken, and generally directing the course of therapy. This process was called 'therapy management', and the set of individuals that participated in the course of therapy, the 'therapy management group'. However a number of questions have been raised by scholars as to the pattern of health care use as a result of lay therapy management, and the limits of this system that appears to be founded within the lineage.

Feierman (1981, 1985) found therapy management to be important among the Shaamba of Tanzania. However, he identified a pattern of risk among those, such as widows, who were often alienated from both their husband's family and their own. Their children experienced a greater frequency of serious disease, malnutrition, and mortality. Further questions may be asked about what occurs when individuals can no longer claim the collective resources of their descent community, either because they are out of touch, or because those resources are inadequate for all who have rights to them. Has kin therapy management because of its tendency to reflect oppositions within the lineage maintained the 'shuttling' pattern of consultation of alternative therapies and diagnostic views? What happens to diagnosis and therapeutic choice when the mixed kin managing group is no longer able to 'control' therapy management?

Understanding the role of social support in the maintenance of health, and its loss or erosion in connection with risk, or occurrence of stress and disease, is an important research question in the health transition in Africa. In Central and Southern Africa the established pattern of episodic support at the time of individual sickness has been, and will in many settings continue to be, the lineage. But increasing numbers of individuals find themselves beyond the range of lineage control and resource access. Also, internal contradictions of the lineage, the breakdown of the lineage, or its inability to extend its care to all, and sometimes the perception that the lineage itself is the cause of sickness, as well as more endemically affected or at-risk sectors of society, lead to a second type of therapeutic support structure.

### **Health-seeking strategies (II): Collective non-kin networks**

When I attended a ritual in a Kongo village church to 'release' a lineage member so he could become well, I did not recognize the significance of the act for what it was. Later, it

was to fit into the pattern of assumptions, divinations, and causes about disease which, while recognizing the lineage as the basic institution of society, nevertheless considers it as an imperfect vessel, prone to inflict individuals with sickness. Envy over access to a limited resource base of shared land, ambiguity over accession to authority roles (the 'three houses' dilemma), and the segmentation of lineages, were the most frequent sources of sickness attributed to the lineage.

These and other endemic or chronic afflictions have given rise to the second pattern of social support across Central and Southern Africa: the extra-kin ritual community. I shall focus here on one particular form often known by the generic term *ngoma*: drum, network, song-dance community, whose members are those with a common affliction. However, more widely, a variety of non-kin support communities may be found, including local cults around shrines, gender-specific community or regional associations, age-grades or sets, Christian churches. Although mainly extra-lineage, these organizations reflect the centrality of lineage values, emphasizing in their treatment of problems, fertility, leadership, unity; however, they also bring out the personal afflictions and the needs of the individual sufferer.

On the basis of fieldwork in Kinshasa, Dar es Salaam, urban Swaziland and Capetown (Janzen, 1989/90b), *ngoma* type associations appear to be a classic form of support institution that has been brought into the urban setting, and as in the past, applied to a myriad of social and health problems. The local cells and networks between them are made up of the formerly and the currently afflicted much in the manner of Western self-help groups.

The social networks and therapeutic cell communities formed through the long-term association of master-healer and novice, as well as the 'lay' clients and the assemblies of people at ritual events, may well offer, in their ability to recreate society, the most pronounced characteristic of *ngoma* therapy in achieving and maintaining health where it has collapsed. The association between health and 'social reproduction' — the ability of a society or a segment thereof to redirect resources and to create social bonds around chronic affliction or stress — is central to my analysis of *ngoma* and related communities. Throughout Central and Southern Africa the ritual groups of *ngoma* therapies have formed around sectors of pronounced personal and social disintegration: in Central African cities such as Kinshasa and Bukavu, or Dar es Salaam, in ethnically-rooted but increasingly universalistic communities of the alienated, women experiencing difficulty, lineages in fragmentation. In the Western Cape, in the face of divided families, crowded difficult living conditions, labour insecurity, and depressed work conditions, the formation of a universalistic support structure around powerful (mostly female) healer networks. In Swaziland, in the face of rapid industrialization and the opening up of the social order in a capitalistic society, the need for 'diviners' schools' to deal with apparently extensive cognitive uncertainty, especially among young adults. The structure of these emergent social forms shows the social reproduction around healers and the healed. Four examples of *ngoma* reveal, in both historic and contemporary settings, the common structural features around a variety of issues being addressed.

### Reconciling lineage and trade in precolonial Kongo society

In the 17th to early 20th centuries on the north bank of the Zaire river, from the Atlantic coast to the site of the market Mpumbu at today's twin cities of KinshasaBrazzaville, where foot porters from the coast met canoes from up-country, local lineages were challenged to



reconcile wealth earned by their merchants in the coastal trade with their own egalitarian and redistributive ethos (Janzen, 1982).

Lemba initiation rituals had an aspect of the divination and treatment of symptoms, which was held to be derived from the fear of subordinates' envy. However, a more important criterion of the initiate's acceptance was the ability to pay for the final stages of the initiation rite, the 'graduation', usually with lineage patronage. Effectively, Lemba was a cult of affliction among the élite mercantile households of north bank Congo river society, in the face of the disintegrative forces of the trade with the coast, including the slave trade.

Lemba also stressed the creation of alliances – strategic marriages – between lineages which forged links across the countryside, along the trade routes; through adequate exchange and distribution within these social nodes. This assured the safe passage of the trade between Mpumbu market and the coast.

The alliances forming the Lemba households either linked major landowning lineages in adjacent communities, or they bonded freeholder lineages with client lineage fragments. The Lemba marriages thus contributed to a regional network accommodating the trade and peaceful relations in a region where no historic state extended its hegemony. The Lemba marriages helped to socially reproduce the society in the face of the centrifugal forces unleashed by the Atlantic trade. We do not know whether Lemba diminished fear of subordinates' envy, either through protective medicine or through redistribution of goods and food. However, North Kongo informants stress that Lemba was an important deterrent to local conflict, and thus it assisted in averting bloodshed, loss of property through burned houses, and chaos that otherwise resulted from local wars. In this sense Lemba did have a measurable effect on the well-being of the region where it was implanted.

Although the percentage of 'Lemba marriages' was only about 5 per cent of all marriages in the region, the Lemba élite was influential in mediating the social contradictions set off by the international trade in a lineage-based society. It also addressed real or imagined lineage fears of fertility decline, and the symptoms of individual anxiety among the elite.

### **Saving lives of mothers and infants on the Southern Savanna**

In the 20th century, Western Equatorial Africa and the Southern Savanna have been found the main areas of low fertility resulting historically from a variety of bacterial and sexually transmitted diseases. (This 'infertility belt' may have been reflected already in Lemba.) In this same region are also found numerous versions of *ngoma* that address reproductive issues. The 'social reproduction' hypothesis of the efficacy of *ngoma* rituals would seem to be perfectly illustrated in these institutions devoted to the enhancement of conception, successful childbirth and the survival of healthy children, and thus the perpetuation of the lineage. Unfortunately, only a few of the existing studies of these *ngoma* orders utilize epidemiological or demographic variables. The best work along these lines is that by Spring (1978, 1985) among the Luvale in Northwestern Zambia and by Gobelet-Vanormelingen (1989) among the Mutombo Mukulu Luba of Southern Zaire. These are similar in their emphasis on reproductive difficulties to *Wubwangu*, *Isoma*, and aspects of *Nkula* that the Turners studied among the Ndembu of Zambia, and to *Nkita* found in Western Zaire and Northern Angola studied by Devisch (1984).

The core features of *ngoma* are found in the reproductive enhancement procedures of *Mbombo* and similar rites on the Southern Savanna. The mode of affliction is identified as

spirit-originated threat to the newly conceived foetus. After an initial rite of entrance, the pregnant woman leaves her husband and enters seclusion in a special enclosure constructed in the homestead of her sponsoring healer-gynaecologist-midwife where she is taken care of with anti-abortive medication, special diet, and hygienic attention. Upon the successful birth of the child, or as much later as the first steps of the child, seclusion ends with a second-stage *ngoma* graduation, and final entry of the mother into the order. In *Mbombo* seclusion ends shortly after the birth of the child, at which time the mother and child are washed and presented to the father. *Ngoma* music accompanies this 'coming out' of the new child with its mother.

Both Spring and Vanormelingen are interested in the 'epidemiology of ritual participation' and the 'efficacy' of these birth-enhancing procedures, that is whether the seclusion procedures enhance survivorship. Spring criticizes Turner for paying little attention to this question, and assuming that the main purpose of *Isoma* (for miscarriages, abortions, stillbirths, barrenness, menstrual disorders, illness of infants), *Wubwangu* (for twin pregnancies, infant disorders, barrenness, miscarriages, menstrual disorders), and *Nkula* (for menstrual disorders, barrenness, miscarriages, ill-health of infant) is social, symbolic, and religious, rather than having to do with the survival of the child or the health of the mother. Important considerations in testing efficacy are that infertility and subfecundity of women are common, and survivorship of infants is low. Among the Luvale of Northwest Zambia fertility rates are near five births per woman, but completed family size per woman is, on average, only 2.05 children, which is barely a replacement level (Spring, 1978:175-176). There are high levels of genital and urinary tract disease, much barrenness and reproductive wastage. These are in part reflected in the high level of abdominal pains, dysmenorrhoea and fevers probably caused by bilharziasis, gonorrhoea and non-specific bacterial infection, in addition to malaria, hookworm, and amoebiasis, which are endemic (Spring, 1978:176).

The isolation therapy at the time of conception is part of a more general cultural strategy of the Luvale to improve the chances of offspring. Childless women are first of all given treatment for barrenness. If they become pregnant, they receive the performance of several *mahamba* cults at a number of possible points in their reproductive years. If a pregnant woman has a miscarriage or delivers a stillborn child, she is a sure candidate for the seclusion ritual. If she has menstrual dysfunctions she will receive herbal treatments which, if unsuccessful, will be followed by appropriate ritual treatment. If a woman's child becomes sickly, both of them will be secluded. If a woman's small child dies, she will receive seclusion. If a woman becomes ill with problems unrelated directly to childbirth, she will be a candidate for the seclusion ritual. The aetiology of spirit or shade involvement in the performance of these *ngoma* is usually made by the diviner. Rarely does it involve trance, although the *ngoma*-type song-dance, a variety of particular medicinal and technical treatments, food prohibitions and special diets, the 'white' symbolism of seclusion, and the two-stage passage, are integral features of the rites.

Fully half of the women in Luvale society are initiated to one or another reproductive cult by the time they reach the end of their childbearing years. In Turner's Ndembu sample, women's reproductive issues were by far the most frequent encounters of individual Ndembu with the *ngoma* system. In his sample from two areas, Turner noted that 19 of 26 women had gone through *Nkula*; 12 of 24 through *Isoma* and *Wubwangu* each (Turner, 1968:303). Spring emphasizes that these reproduction enhancement rituals are



thus both responses to generalized physical ill health, and particular responses to the concerns of families for effective biological and social reproduction.

How effective are the rituals and their related interventions? Vanormelingen judges as 'truly beneficial' the continuous assistance of the healer and the woman's husband, creating an encouraging atmosphere for her; some rules of behaviour, particularly the necessity of living away from the stresses of family life and dangers of exposure to contagious diseases and work-related infections, and of having complete rest; after childbirth, seclusion allows her to reinforce the mother-child bond. More dangerous to the health of mother and child are certain practices in preparation for birth and delivery, which, because they are non-sterile, may increase the risk of infections or tetanus; and certain food prohibitions which appear to restrict intake of nutritious food.

Spring's findings show that of the 50 per cent of all Luvala women who become involved during their reproductive careers with *ngoma* therapies, 20 per cent have had problems with barrenness, or difficulty in reproduction, or with the health of their offspring (20 per cent of offspring die by the time mothers have reached age 45). Most women who are divined to require *ngoma* rituals do enter them, and in their later years become the doctors of these cults. This means that the women who are members of, involved in, and leaders in the *ngoma* orders, will probably have a lower survivorship rate among their children than the non-members. Survivorship and efficacy rates must rather be calculated in terms of pregnancies saved that might otherwise have been lost, and surviving infants who might otherwise have been lost.

Spring focuses her discussion of efficacy around the structure and the strength of the network of women active in reproduction enhancement, and what this does for their self-image, social role, and the structure of the community. The sequence of being a sufferer-novice, an apprentice, and finally a cured-doctor, results in a co-operative system of social relations permitting women to gain, and perpetuate through practice and teaching, the knowledge of how to deal with specifically women's reproductive issues. As in other *ngoma* contexts, adversity is turned into strength, anxiety into specialized knowledge, suffering into health. The institutional framework brings spirit possession, as an ideology, into the set of aetiological beliefs, although the type of knowledge needed to deal with infertility, threatened miscarriage, stillbirths, sick children, and the rest, is highly practical, what in the West we would call empirical and rational knowledge, rather than a trance state.

### Surviving the townships of Southern Africa

Far to the south, at the Cape of Southern Africa, *ngoma* groups gather in a similar manner, although there are no differentiated orders. The composition of 'cells' does not appear to be as differentiated or specialized as in Central Africa, two cases of which would be Lemba in Lower Zaire or the reproduction enhancement rituals of the Southern Savanna. Modelled after Nguni institutions, *ngoma* in the townships of the Western Cape takes on the form of informal friendship alliances between healers (*sangoma*, *amagqira*) for the purpose of healing, purification, and initiation. This process, writ large, yields a network of partly overlapping memberships that varies from gathering to gathering, and may, in time, radiate out to the entire region, as information is passed and mutual help and gifts exchanged over divination, counselling, and healing-initiating.

This pattern of network structuring in the sessions, as well as the identity of personnel, suggests a thoroughgoing eclecticism of ethnic origins around a core of common ritual features. To the skeletal network of Western Cape diviner-healers needs to be added an



array of an average of ten novices allied with each individual. These novices regularly attend all events put on by their master-healer such as initiations, therapy and purification sessions, and graduations. The novices' own families are to some extent involved, if not directly in the events, then indirectly in the benefits of the regular food distributions made at the time of sacrifices and feasts. The attendance at one typical event included seven master healers (three Xhosa and two Zulu women, two Zulu men), two female Xhosa senior novices, six Xhosa female and one male novice, and a Sotho male initiate. Several dozen observers were on hand, including the initiate's family and neighbours.

In calculations based on average numbers of master healers in a number of fairly equal-length streets in a number of Cape Town's black townships, a conservative figure of master healers in Cape Town's black districts would be 1,000 or 1:2,000 inhabitants. If one considers the number of novices as ten times this figure, one in 20 inhabitants are actively involved in the network, a figure that comes to one individual in every fourth house.

Wilson (1982) has sought to identify the particular stressors that might be associated with the appeal to *ngoma* within the households of the Cape area townships. The explicit reason often given for the seeking of admission to the *ngoma* cell is the 'call' (*twasa*) of the afflicted. Wilson has investigated the correlation between this support-seeking and the slightly more frequent presence of tuberculosis cases in these households than in non-*ngoma* households. Although there is no conscious or explicit linkage in *ngoma* participants' explanations between tuberculosis and the call to join *ngoma*, the possible basis for such a link is apparent to the analyst. It might be direct or indirect. The claim is not made that *ngoma* healing is directly beneficial for tuberculosis. Rather, the claim could be made that just as tuberculosis, where endemic in its latent state, has erupted in active infection, the strain on others in the household becomes so great that they are led to seek support in a *ngoma* or similar network. Tuberculosis is endemic in South Africa, and a variety of stressors such as inadequate nutrition, poverty, lack of adequate shelter, bring on active episodes. Also, it is common knowledge that prolonged rest is required to recover from an active episode, along with medications. Participation in a *ngoma* cell or network would provide the requisite support, additional contacts, and sources of aid needed to deal with the crisis, short- or long-term.

Although one could figure the nutritional intake offered to participants in the *ngoma* network events as a possible point of departure for the analysis of its existence, more significant may well be the social investment in *ngoma* therapeutic structures. If one in four households is involved, and this network covers the entire urban society, as well as connecting to other cities and rural areas, it is significant, whatever constellation or social formation it reproduces.

During the years of apprenticeship-initiation-therapy, the master healer serves as role model, counsellor, therapist, guide; in return, the master may expect services from the novices. Although the novices pay their masters a goodly sum of money, they stand to benefit in the reshaping of their lives, in sorting out problems, finding contacts to jobs, and referrals of all sorts. Intense resocialization occurs within the group of novice-peers. The possibilities go beyond this, to the more public network into which the master-healer is the 'hub' of the wheel. This level extends, as we have seen, via the sacrifice events, and the *ngoma* network, out to the entire society. It is, as Ngubane (1981) has suggested, a pan-societal network extending across Southern Africa. It creates a social form offsetting the extensive fragmentation of kin groups in South African society and households which are



often not families at all but agglomerations of strangers under one roof (owned by the government). Its point of reference is around the formerly sick, the marginal. Thus its composition is sensitive to new stresses and pressure points in society as it incorporates those who have gone, or risk going, 'over the edge' into sickness, despair, or madness.

### Professionalism and state control of *ngoma* in East Africa

The final example of the social reproduction of health through *ngoma* is from coastal Tanzania and shows yet another variation of the therapeutic focus and organizational structure of the institution. In the Islamicized setting of Zaramo and Zigua of the Swahili coast, the coastal healers' organization of *waganga* has utilized their *ngoma* networks to create a centralized institution, the *Shirika la Madawa ya Kiasila*, with officers, books, a treasury, and the presence of a representative of government to be liaison with appropriate ministries. Local *ngoma* performances draw, as everywhere in *ngoma*, a shifting set of senior participants with their apprentices and novices. At another level, there are individual *waganga* who belong to family lineages, which in the Swahili coastal setting have often passed their therapeutic skills from generation to generation.

The *Shirika* had about 500 members in 1983 in Dar es Salaam, Tanga, Bagamoyo, and Morogoro, and in the prospective national capital Dodoma. The links between this regional organization and the government revealed some of the same forces of economic interest, of political strength, and of party and government control that had surfaced in an earlier national organization. The reasons the state would be interested in *ngoma* were intriguing to explore.

The *Shirika* had official recognition through the Ministry of Culture, which generally handled licenses for *ngoma* entertainment groups and conducted research on song-dance. The power of *ngoma* as a resource, especially one this large and organized this well, was indicative of its symbolic power in society. It was not surprising that the State or Party would wish to seek membership of *ngomas* in a state-sponsored organization. The case of the Tabora 'cattle rustling *ngoma*' was instructive. This *ngoma* had arisen in response to the need to locate stolen livestock. The government had only later heard about it, and then belatedly tried to gain its allegiance. Similarly, a *ngoma* for entertainment generated by the National Service appeared to be an effort, from within, to relate the state to the powerful symbolism of socially focused song-dance.

The evidence from *ngoma* in Tanzania suggests that a resource such as *ngoma* which responds to need, and which symbolically, socially, and materially reproduces itself, by that very fact attracts the attention of the state, which wishes to co-opt or draw power and legitimacy from it.

The resources to be drawn from *ngoma* were also apparent to the individuals and families which made their living from the networks, clinics, and performances. Unlike the populist networks of reproduction-enhancing *ngomas* of the Southern Savanna, or the township *ngomas* of the Western Cape, here only about 3 to 4 per cent of the patients were fully initiated.

*Ngoma* therapy thus follows the pattern of medicine elsewhere in the world. Professionalization, i.e., full-time practice, the transition to utilizing therapeutics as income, and organization, lead to the control of the therapeutic and symbolic resource, in this case divination, the diagnosis of spirit possession, and the performance of authorized therapeutic song-dance.

## Health as social reproduction

'The Social Reproduction of Health', as embodied in therapy management and ritual therapeutic networks, represents one approach to thinking through the analysis of basic health, how it is conceptualized and maintained, and, when it is disrupted in sectors of society, how resources are directed toward improving health in that particular context.

This approach to health is based on the work of a number of anthropologists. In assessing a 'social reproduction' concept of health it is important to identify the social units or sectors involved, and to be able to identify some indices of this process that are separate from biological reproduction and the reproduction of labour. Meillassoux's analysis separates the 'domestic community' as a social formation from both biological reproduction and the reproduction of labour for capitalist needs (1981:85). He distinguishes the energy or 'social product' needed (a) to reconstitute productive adult producers, (b) to nurture future producers, i.e., 'not yet productive' children, and (c) to maintain the post-productive elderly and the sick. The sum of these products offers an indication of what is required to socially reproduce the domestic community. Relative surpluses enhance and enrich the community; relative deficits erode it. Over several years one can in theory determine the level at which a community reproduces itself, or falls below a minimal replacement level.

Bourdieu (1977) goes beyond Meillassoux's materialism in the calculus of social reproduction, to make a distinction between social, biological, and symbolic reproduction. In his work on the Kabyle of Algeria, he notes that the patrilineage, composed of households headed by brothers, is the principal social institution. Various centrifugal forces are at work to bring disintegration to the lineage. Strategies to pull the lineage together, to maintain the family, socially, symbolically, and biologically, concentrate on the appropriate marriage. This is often a marriage to the father's brother's daughter (*bint amm*), so common in pastoral nomadic societies, which serves materially to keep the herds and other aspects of the estate intact. However, Bourdieu points out that such a strategy involves far more than just economic management (1977:60). The ethos of honour attaches to the unity of the land, to equal status alliances, and the unity of the agnatic group, the prestige of the house. It is impossible to separate ends and means of the collective matrimonial strategies. Every marriage tends to reproduce the conditions which have made it possible (Bourdieu, 1977:70).

These issues of threshold levels of household and community maintenance are addressed in Murray's (1977) analysis of Lesotho, deeply involved in oscillating labour migration to the mines, cities and factories of South Africa. In the 20th century Lesotho has moved from being a food-exporting agrarian society to being a society now largely dependent on wage labour in South Africa's industrial economy. Disease levels have risen during this period; tuberculosis in particular constitutes a major endemic disease. Aggregate demographic data for Lesotho are comparable to those elsewhere in Africa, with crude birth rates having remained constant at 42 per 1,000 per annum, and death rates having declined from 18 to 15 per 1,000 from 1965 to 1983, resulting in an increase in population growth over that time from 2.4 to 2.7 per cent per annum (World Bank, 1986).

Murray's careful anthropological fieldwork suggests that these aggregate demographic data mask the significant intra-community disparities, in household makeup, and in related mortality and morbidity and overall health rates. Up to 70 per cent of the households are managed by women who are almost entirely dependent on their husband's wage labour for



survival. Only 6 per cent of household income came from sale of farm produce. At highest risk for disease were those families with a single household head, and those with children in which the spouse of the resident head did not provide a cash stipend (Murray, 1979:346). In these homes infant mortality often reached 50 per cent, far higher than the 120 per 1,000 average. Although these 'at risk' households reproduced the labour pool for the South African capitalist marketplace, and contributed to population increase, they were not 'socially reproducing' themselves. In Meillassoux's equation of social reproduction, they plainly reflected a social product deficit. In Murray's account, social mechanisms most often utilized in Lesotho society to improve domestic reproduction were 'inter-household income transfers' such as cash and in-kind remittances, bridewealth transfers, share-cropping arrangements, and other contractual and reciprocal arrangements for food growing; and informal sector transfers such as beer-brewing, petty trading and concubinage all of which maintained a wider scale of social relations than the household, and thus extended viable social support links for those in short-term or long-term need. Also, the exchanges and feasts of ancestor rituals, often in connection with leaving for, or returning from, migrant labour, play an important role in forging and renewing the alliances needed to survive the absence of the family head (Murray, 1979:347).

A further author of note who has addressed the 'social reproduction of health', without utilizing these exact words, is Frankel, an MD-anthropologist who has worked among the Huli in New Guinea. Frankel's (1986) medical anthropological study of the Huli develops both the negative indices of health, the 'absence of disease', and the positive concept of 'social effectiveness.' The elaboration of rhetorical skills, esoteric knowledge, ritual practices and cosmetic decorations are considered essential in the ability to be effective in social exchanges. These are seen as prerequisites in soliciting others' generosity and ultimately enabling an individual to care for a family and to lead the community. For the Huli, and for Frankel, social effectiveness is seen as operating at a level to include not only the household, but larger societal levels as well; and, not merely the material basis of existence, but the symbolic exchanges needed to extend public institutions.

The social reproduction concept of health offers a model of how therapeutic rituals such as the *ngoma* might in fact prove efficacious in restoring or maintaining health.

### **African medicine and the health transition**

The evidence presented here suggests that African medicine, couched within African social values and institutions, has responded to the effects of 19th and 20th century assaults upon the health, security, and welfare of African peoples, rather than having remained static. It has dealt mainly with the restoration of ill-health and the well-being of basic domestic groups such as households and lineages. This emphasis upon fertility and the perpetuation of the lineage should not be surprising. Infertility or high death rates have been a major problem, and the extinction of the domestic group a perceived serious consequence of that problem. Yet as urbanization and the increase of population become realities, this emphasis of African medicine seems increasingly anachronistic, or out of phase with the problems of society at large. This would seem to suggest that African medicine has brought itself to a dead end.

However, there is a fuller sense by which the role of African medicine must be assessed. We need to look at the effective manner in which it marshals technical and symbolic resources; the way it responds to changing demands; the way it is instituted and legitimated; the way it offers varied and flexible approaches to society's stress-points.

African medicine, seen in this light, is a responsive vehicle of information about individuals and society, a context for responding to perceived need. It emphasizes the role of social support of the afflicted, and works on both individual and collective issues. It is sensitive to the need of individuals to be freed from the entrapment in institutions like the lineage and its contradictions. For these persons, and for those chronically affected, African medicine provides the means for personal transformation within a culturally sanctioned framework. In the broader context of the networks of those having been initiated to an order through their own suffering, it provides a forum in which to generate new learning and to disseminate it. Perhaps most noteworthy in African therapeutics is the support received by the marginalized, those who are society's victims. In the setting of *ngoma* type orders, these individuals are empowered to become healers, leaders, mediums, effective individuals.

As African societies have adopted the institutional frameworks of the nation-state and are actors in the world at large, the distinctions and barriers between traditions have broken down. African medicine, like many other medical traditions, has always taken in new techniques and *materia medica*. Thus, the *nganga* adopts the stethoscope, the injection, the pill, and the microscope, as well as, increasingly, the concepts behind these techniques of Western medicine. Yet the broad orienting hypotheses of African medicine continue to play their role. The lineage, the therapeutic order, the diviner, the hypotheses about the social aetiology of affliction and misfortune are still present, and the concepts and realities that inspire these institutions also remain viable.

Africa's health transition has been going on for some time. It was present in the response to slavery and the great trade. It continued with the techniques to maintain fertility and shore up the basic social institutions. It became urbanized. It adopted elements of Western medicine. But it has been mostly reactive, as medicine tends to be everywhere. Hopefully, in the future, health seekers will be able to utilize the means at their disposal that African medicine offers, for authentic and transforming rather than imposed solutions to health problems.

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## Chapter 42

# Creating medical issues: how do physical conditions become medical problems?

Donald Denoon<sup>1</sup>

It is a commonplace of human experience that physical conditions can be taken for granted — for centuries together — until something provokes individuals to look at them in a fresh light. To cite a simple example, Melanesians lived on top of gold-bearing ore, and alongside auriferous rivers, for time out of mind: their technology had no use for minerals, and pigs (and cassowaries and shells) were perfectly adequate stores of individual wealth. A series of jolting experiences transformed the passive acceptance of geology into perceptions which were more active and acquisitive: the evidence that Australian prospectors would risk their lives (and the lives of Melanesians) to extract the minerals, the discovery that gold could purchase commodities, the observation of the very simple technology required for alluvial prospecting (Nelson, 1976), combined to transform physical peculiarities into exploitable resources (O'Faircheallaigh, 1982). This is by no means unusual: Australian Aborigines endured the same revolution in perception (Blainey, 1969) with rather fewer benefits.

So there is nothing new in suggesting that the physical conditions which humans endure stoically for centuries can be transformed into 'medical problems' very swiftly, if attendant conditions change. The narrower question addressed below is what those conditions may be. The geographical focus of the enquiry is Papua New Guinea, where we compare and contrast some indigenous and some foreign professional perceptions.

A recent review of the subject concedes that scholars know almost nothing about Melanesian traditions of medicine, or their *materia medica* (Jenkins, 1984b). A narrowly-focused enquiry suggests that careful nutrition was the chief source of relatively good health in pre-colonial times, rather than a complex application of herbs and drugs (Borut Telban, personal communication; see also du Toit, 1975). Our understanding of these subjects therefore depends upon inference from demographic statistics and anthropological observations.

Melanesia appears to have the highest masculinity ratio of any region on earth: about 110 to 100 in both Papua New Guinea and the Solomon Islands (United Nations Demographic Yearbooks; Lea and Lewis, 1976). Differential nutrition helps to account for this imbalance (Hide, 1984), but a significant contribution is also provided by childbirth traditions. In brief, there is no indigenous tradition of midwifery (Jenkins, 1984a). Instead, women gave birth either alone or with the psychic support of female kin. To illustrate the scale of this problem, let us suppose that someone in 1939 had the choice of joining the Australian army or being a pregnant Melanesian: that fictive person would have been very much safer in Australian uniform than in a Melanesian birth centre. We know how profoundly the mortality rate of Australian men disrupted and reshaped Australian society

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<sup>1</sup> Much of the evidence in this paper is presented more fully in Denoon, 1989.



during the six years of warfare: but the perennial risks of Melanesian women were not construed as a 'medical problem'.

Here we risk denigrating Melanesian societies, so let us guard our flanks by fingering the Australian colonial authorities who also disregarded this problem. From the beginning of colonial administration (1884 in both British New Guinea and German New Guinea) for at least 50 years the colonial states were disturbed by the prospect of depopulation (e.g. Cilento, 1924, 1936; Firth, 1983). Theories of psychic shock or venereal disease were canvassed, and remedies included the segregation of venereal patients (Maddocks, 1970), the criminalization of birth control, and the payment of baby bounties to prolific *fathers*. One might expect some attention to be paid to parturition, but this did not command the same attention as exotic explanations.

The director of health services in British New Guinea (renamed Papua after the Australian Commonwealth assumed responsibility in 1906) was Walter Mersh Strong, sometime specialist in the Electrical Department of St Thomas's, an enthusiastic anthropologist as well as a doctor. Strong actually published his 1904 ethnographic researches into Papuan birth rituals (in Seligman, 1910). Only 30 years later did he turn his *medical* attention to the same subject, when he discovered that missionary women were intervening in matters of maternity. He then urged the authorities to eschew any intervention which might cost money (Strong, 1930). In New Guinea too, women's medicine was delegated to the missions. These circumstances underline the fact that the colonial states were not only white regimes in black countries, but just as emphatically male regimes set above communities in which women's production, reproduction and consumption did not command its full value. At a time when childbirth in Australia was being medicalized (Hicks, 1978), the neglect of the subject in an Australian colony is arresting. The creation of a Maternal and Child Health Division of the Department of Public Health in the (combined) administration of Papua New Guinea in 1950 formally ended this era of neglect: and this is discussed below.

To return to Melanesian perceptions of physical stress and medical problems, we may consider the amply documented case of a new physical threat and Melanesian reactions to it, during the 1950s and 1960s. The case is, of course, *kuru*, which emerged in a remote part of the Eastern Highlands district, produced wasting and ultimately death (often by physical accident before the disease ran its full course), and was quite inexplicable to its sufferers (Hornabrook, 1976). The Fore community, blighted by this appalling destroyer, turned readily to social explanations, assuming that the affliction signalled something amiss in their social relationships (Glasse, 1964). (That response foreshadows the response of the Australian public to AIDS.) The episodes suggest that a society need not develop a medical perception of a new physical problem, at least until the possibilities of social analysis and social action have been exhausted; or until medical specialists can present a more effective and persuasive analysis than popular wisdom. In the *kuru* instance, it required careful ethnographic reconstruction, Gajdusek's access to American laboratories, and his perception, drawn from similar problems elsewhere, that a very slow virus was conceivable, before the aetiology of the disease could be demonstrated, and appropriate action taken to prevent further cases (Gunther, n.d.). It is rare for these skills and resources to be made available so swiftly, or indeed so successfully. The Fore might have endured *kuru* indefinitely, persisting in social and psychic experiments, if no medical aetiology had been

presented. They might even, like the Dani in other circumstances, have intensified the social practices which provoked the problem (Maddocks, 1970).

Much depends, therefore, on specialists: it is their vision of what is possible, which can transform physical conditions into medical problems. Can we say anything about medical specialists' notions of possibility? Notice that I only ask this question because I think I can answer it. The medical profession manifests the same universal human vanity: there is little point in asking questions unless answers seem likely. German authorities in New Guinea, for example, had no strategy to deal with malaria, and mainly accepted it as the inevitable physical condition of living in the islands, until Koch brought news of the role of the anopheles mosquito and the prophylactic possibilities of quinine (Ewers, 1973). The first point to make then, is that medical technology sometimes precedes medical enquiry as well as following it.

There are, however, other constraints on medical vision. Modern medical institutions were introduced into Papua New Guinea in the matrix of colonialism, so that the population was in a poor position to make demands on the specialists employed by the colonial state (Maddocks, 1975). For at least the first generation of colonial administration, most Papuans and New Guineans steered clear of the medical authorities, a task simplified by the authorities' lack of financial and technical resources. Sir William MacGregor, for example, a doctor who administered Papua from 1888 to 1898, recognized that pneumonia was a major killer of Papuans, and understood the malign effects of poor sanitation and impure drinking water; but he was often the only doctor in the dependency, and devised no effective strategy for averting infection (MacGregor, 1900). As plantation economies evolved, medical inspections were required for labourers at the beginning and the end of their terms of employment (Maddocks, 1970). That requirement accounts for the great bulk of consultancies.

**Table 1**  
**Admissions to Port Moresby native hospital during 1918-1919**

Indentured labourers	524	
Time-expired indentured labourers	36	
Rejected recruits	57	
Prisoners	44	
Government employees	162	
'Non-Papuan Coloured'	10	
'Villagers' (i.e., voluntary)	38	(or under 5%)
Total number of patients	871	

Source: *Papuan Annual Report*, 1918-1919

As Strong (1935) put it:

The Government pays me to look after [Papuans'] health and I am quite willing to help them all I can, but if they will not come for treatment it is their own concern, and as far as I am concerned it merely saves trouble.

That situation was modified after the Great War, when arsenical injections became available to treat yaws. So popular were these injections that mothers laid siege to the clinics, demanding for their children the single magic 'sut' which dispelled infection. The



state had to train missionaries to administer the injections, in order to keep pace with demand.

Another significant inspiration of medical activity was the Rockefeller Foundation, pursuing its world-wide crusade against hookworm, as a means of popularizing modern medical institutions (Hull, 1987). The combination of arsenicals for yaws and novarsenobillon for hookworm enchanted the health authorities, and produced a quaint distortion of services.

**Table 2**  
**Treatments delivered by health extension workers in Papua, 1925-1926**

49,518	hookworm treatments
12,643	yaws treatments
186	cases of venereal disease and
51	cases of everything else.

Source: *Papuan Annual Report, 1925-1926*

While planters were delighted that attention was paid to their labourers' health and strength, they rarely took the initiative in seeking medical solutions to the plantations' physical problems. Only once did the plantation industry offer policy advice (and money) to the authorities, and that was in the unique situation of the early 1920s, when virtually all plantations in New Guinea were managed by the Expropriation Board, prior to distribution among Australian ex-servicemen. Even then the medical authorities snatched the bait and blithely disregarded the policy hook (Lucas, 1922).

With few exceptions therefore, from the 1880s until the end of colonial administration in the 1970s it was the government's own doctors who decided what the problems were, which of them to tackle, and how to address each issue. How did they frame their vision of the possible? We have noticed that MacGregor in the 1890s was vexed by the impact of pneumococcal infections on Pacific Islanders. He also recognized the importance of clean water supply. His successors, however, addressed a quite different agenda, created for them by the evolution of the new discipline of Tropical Medicine, from the early 1900s onwards (Worboys, 1976). To summarize a complicated story, the new development stressed genetic differences between European and other populations, and tied tropical diseases to those tropical populations. The Australian Institute of Tropical Medicine (founded in 1910 in Townsville) summed up the position as follows:

From the earliest days of [Australian] colonization European diseases were introduced in quantity among the early settlers; various tropical diseases were introduced by the Kanakas [workers in the Queensland sugar industry] from the islands of the Pacific; and by the hordes of Chinese and other Asiatics that poured in before the days of Federation ... Three sets of disease conditions consequently present themselves for control:

- 1. those introduced from European countries;
- 2. those introduced from neighbouring tropical lands;
- 3. those indigenous to the country (Cilento, 1922).

The Institute's professional influence in the region was diffuse and profound; and that influence promoted attention to segregation and quarantine to separate racially defined

populations, and to a narrow set of 'tropical' diseases. It is this 'mental set' which enabled competent and humane doctors to fiddle with hookworm and yaws, quarantine and segregation, and the plethora of venereal diseases, although these tasks demanded only a fraction of their professional competence.

What was omitted from their agenda, by the savagely restrictive vision of 'tropical medicine'? First, it ruled out sustained attention to maternal and child health. Second, it diverted attention from tuberculosis, which made impressive strides through fresh populations (Wigley, n.d.). TB is certainly not a 'tropical' disease within the rubric of the founding fathers of the discipline. It is, however, decidedly a disease of colonialism. Research even in the 1930s revealed that TB infected communities in direct proportion to their exposure to the colonial economy and culture. Plantations, the enclave towns on the coast, and mission schools, were the likeliest sources of infection: so the geographical distribution of infection is an accurate map of the colonial intrusion. While the colonial medical authorities delayed, people in the most affected community – Hanuabada, the urban village encapsulated in Port Moresby – took the initiative themselves, building isolation accommodation. The burden was then picked up by the London Missionary Society before the war, which built an isolation hospital on Gemo Island in Moresby harbour (Kettle, 1979; Wigley, n.d.).

Third, the restrictive rubric also prevented any serious attention to malaria, even though this was (wrongly but very emphatically) defined as a tropical disease. Settlers were encouraged to protect themselves from malaria through regular use of prophylactic quinine; and by living at least a quarter of a mile from Melanesians. However, any notion that malaria might be controlled among Melanesians, or indeed prevented from entering communities which had evaded the parasite through isolation, was deemed unwise (Gunther, n.d.). Accordingly indigenous malaria continued to be viewed as a physical condition, while it was addressed systematically as a medical problem among expatriates.

Pre-war medical policy was shackled by poverty and the absence of drugs relevant to many prevailing conditions. Perhaps even more paralysing was the refusal of colonial administrations to employ white women, a taboo which not only barred the employment of women doctors (Kettle, 1979) but more seriously prohibited the employment of nurses except in whites-only hospitals. Administrative personnel included many medical assistants and a variety of indigenous paramedical workers: without exception they were male. Since the world's sick in the 1930s required nursing more than doctoring, this measure effectively paralysed public health work. After the Pacific War, some constraints were removed. Australian aid increased every year from 1945 until Independence, when it provided at least half of all government revenue (Denoon, 1985). Medical possibility was transformed by penicillin, sulpha drugs, and the war-time efficacy of disciplinary measures (Sir William Refshauge, personal communication). More slowly but remorselessly women were better represented, first by their inclusion among the ranks of doctors, and then by the abolition of the racial restrictions which had confined nurses to racially segregated wards in base hospitals (Kettle, 1979). The defensive paradigm of tropical medicine was no longer persuasive when many infections were preventable or curable, the need for quarantine declined, and disease was no longer imagined to be bounded by racial categories.

The 1950s were the golden age of the country's Public Health Department. Led by the ruthless and charismatic John Gunther, reinforced by four dozen European doctors who were barred from practising in Australia (Kunz, 1975), amplified by a massive increase in



Medical Assistants and nurses (Kettle, 1979), inspired by the new miracle drugs, the Department moved out of the defensive enclaves and conducted military field campaigns against specific killer diseases (Gunther, n.d.). Joyfully accepting responsibility for the well-being of the whole population for the first time, the Department remained a male-dominated structure, but created a division responsible for the health of women and children. In this liberating cognitive shift, tuberculosis, malaria, leprosy, all became medical problems because technical advances persuaded medical planners that they could be resolved. Infant mortality was another topic which was reclassified in this fashion, spurred by Gunther's (rubbery) claim that infant mortality rates often reached 500 per thousand (Murray, 1949), and the administration's belief that Australian security hinged upon an increased Papua New Guinea population (Denoon, 1985).

The Queen Elizabeth II Infant, Child and Maternal Health division (to cite its full title) was entirely staffed by women doctors and nurses: structurally a women's auxiliary to the Department, which did not deploy women doctors in any branch except MCH during the 1950s. The MCH service also co-ordinated the continuing work of the missions, which had enjoyed *de facto* sole responsibility for women and children until the 1950s. In the context of the present enquiry, it is intriguing that an organization managed by women, with a stated responsibility for them, contrived to neglect that responsibility.

Two statements from MCH annual reports clarify the manner in which MCH staff marginalized their maternity brief. In 1953-1954, for example, the head of the division reported:

... natives are becoming more conscious of the benefits of ante- and postnatal care, and are now asking for their wives to be admitted to hospitals for confinement ... In Wewak, the native leader ... sponsored the building of a Native Maternity Hospital by voluntary workers ... (Refshauge, 1953).

'Natives' were men, who spoke for their shadowy and inarticulate wives, a circumstance favoured by the general mobility of men (and the immobility of women) in society and economy at large, such that women seldom spoke a *lingua franca* which would enable them to speak directly to expatriates.

In consequence of this social imbalance, maternity needs were all too easily neglected: Native women have shown an increasing tendency to obtain the full benefits by clinics, especially in antenatal care and advice. The success achieved is shown by the ease with which native mothers attending the clinics breastfeed their babies, and the number of abnormalities which have been detected and corrected. It is planned to give additional talks for mothers, especially in relation to baby-foods and the care of babies.

Even in describing field operations, the demand for maternity services slides into the provision of child services.

This evidence might be dismissed as 'head-office myopia', were it not reflected in the aid posts and clinics:

Preconceived ideas of ancient origin, doubtful customs based on tradition combined with stringent economic need, were retarding factors in Administration efforts to implement a simple standard of mothercraft within the civilizing influence of the Maprik native hospital (Burchill, 1967).

Other evidence (e.g. Young, 1981; Reid, 1984) supports the judgement that child-centredness was endemic in the MCH service, blinkering health workers to the continuing need for maternity intervention. The present situation still reflects this phenomenon, with maternal mortality rates very low in urban areas where mothers enjoy easy access, but persistently high (somewhere between 10 and 20 per thousand births) in rural areas where maternity services are either absent or ritualized (Mola and Aitken, 1984).

What does this obscure detail tell us about the circumstances in which physical conditions can become medical problems? If we consider Melanesian behaviour in relation to yaws, it is clear enough that people accepted the infection as an inevitable circumstance of living; until a medical treatment was made available, at which point yaws abruptly became a medical condition deserving intervention. It is likely that this, the first evidence of white medical competence, predisposed people towards other services available through missionary and colonial health centres. Again, the new threat of *kuru* was perceived as evidence of a social problem, until Gajdusek and his co-workers offered a medical aetiology (though not a cure), which promised an end to the problem. The equally new threat of TB, however, provoked an infected population to act defensively without external stimulation, prompting the missionaries and ultimately the colonial authorities to co-ordinate control measures. Most arrestingly, Melanesians accepted a very high maternal mortality rate as an inevitable feature of living, until new information showed that mortality could be reduced. What this might suggest is a readiness to respond, socially or 'medically', to some new physical condition or to information about new medical possibilities.

The colonial situation allows us to observe the behaviour of the medical profession with few social constraints on their freedom of perception and action. Since private practice was rare, the profession was further united through employment in colonial administrations, so that professional interests could be stated clearly and decisively. In general, medical strategists took their cues from the profession on a worldwide basis, adopting 'tropical medicine' as their paradigm from the 1900s, shifting to great field campaigns in the 1950s, and adopting the new paradigm of 'primary health care' by the 1970s. Very rarely did the profession act in advance of doctors elsewhere. They might sometimes act more slowly than the rest of the profession, not because they were out of touch, but through lack of resources or the ideological constraints of the colonial situation itself.

The constraints on doctors' ability to identify medical problems may perhaps be summarized more crisply. First, and most obviously, they were constrained by medical technology. Instances of this include their tolerance of malaria and yaws until the turn of the century. Second, and also obviously, they were hampered by shortages of funds. Until the 1940s, it was inconceivable for medical planners to assume responsibility for the health of the whole population. Third, they were further blinkered by various social inhibitions. The colonial situation itself required them to give priority to the health of the expatriate enclaves and the strength of the labour lines. The masculinity of the colonial regime, reinforced by the masculine values of the colonized population and the 'social invisibility' of women, restricted their view of what was possible. Thus, even when maternal health was placed on the medical agenda, planners were unable to concentrate on that disaster area for more than about two sentences at a time.



The implication of this argument is that narrow social horizons are just as limiting as technical and financial constraints, in narrowing the vision of public health workers. How this might be addressed, however, is too large and diffuse a topic to be envisaged here.

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## Chapter 43

# Constraints to the potential impact of the direct interventions for child survival in developing countries

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### Introduction

The direct interventions for child survival refer to the application of low-cost technologies designed to reduce the major causes of mortality and morbidity in developing countries. These interventions typically include growth monitoring, oral rehydration therapy (ORT), breastfeeding promotion, and immunizations. These interventions were selected as cost-effective means to target the major causes of childhood morbidity and mortality in developing countries, which are estimated to be responsible for 10.8 million of the 14 million deaths of children under five. According to 1987 UNICEF and WHO estimates, diarrhoea remains the number one cause of mortality in children under five (5 million deaths per year), followed by acute respiratory infection (2.9 million), measles (1.9 million) and malaria (1 million). Malnutrition remains a contributory cause of death in at least one-third of the 14 million (Grant, 1988).

While the direct interventions have proved to be highly efficacious and cost-effective in more controlled clinical settings, the large-scale implementation of these interventions in communities appears to be less so (Chen, 1986; Wolffers, 1988). It is instructive to examine what happens to the effectiveness of technologies when they must be delivered under diverse field conditions, on larger scales, and with fewer resources than in pilot or experimental settings. It appears that simply providing these technologies to developing countries is not the solution for 'health for all' because a variety of socio-political and economic factors modify the potential impact of these interventions. Korten (1980) has described the importance of 'embracing error' as part of the learning process approach. By examining the constraints and problems associated with the direct interventions, changes in health strategies that are necessary for the health transition can be identified. This paper will explore what problems the direct interventions are encountering in an effort to learn from these experiences and as a guide to future steps into the health transition.

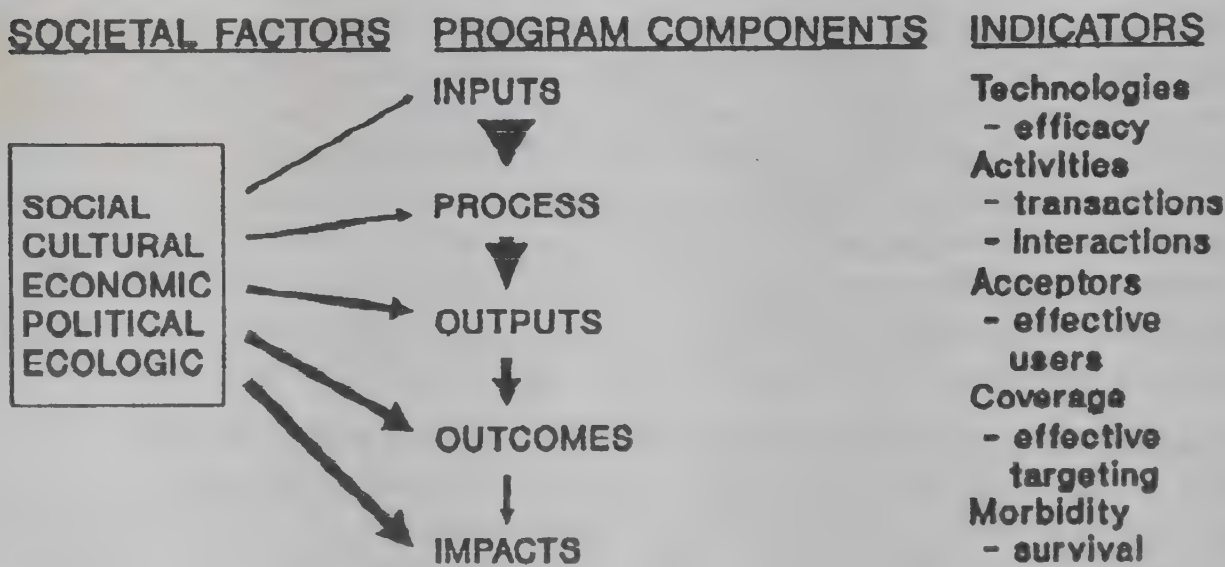
### Constraints in the implementation of the direct interventions

What are the constraints to the full impact of the direct interventions in developing countries? It is useful to illustrate some of these constraints by using experiences with oral rehydration solution (ORS) as an example. ORS was proved to be a highly efficacious and efficient (cost-effective) means of treating dehydration associated with diarrhoea in controlled clinical trials and pilot projects. The use of ORS in clinical settings led to dramatic increases in survival and cost savings relative to the prior experiences with intravenous hydration. However, in settings such as hospitals, research centres or demonstration projects, clinical efficacy and efficiency of ORS is maximized since it is administered by qualified health workers attending children with moderately severe disease. In large-scale community or national applications, ORS leaves the hands of highly

qualified health workers and is passed on to community health workers or child caretakers. Their effective use then is commensurate with the level of training or education these individuals have. Additionally, the spectrum of disease severity in field settings differs from that in clinic settings, so many cases of mild diarrhoea may be treated for each case of severe diarrhoea. Lastly, while ORS may effectively avert diarrhoea-specific mortality in clinical settings, its lifesaving potential in community settings may be reduced by increased risk of other illnesses or causes of death which compete simultaneously. This is not to say that ORT is not a valuable technology, but that the costs and efforts needed to establish the effective use of ORT on a large scale were vastly underestimated, and its potential impact overstated.

The other direct interventions face similar constraints with slightly different permutations that arise from the specifics of each technology. The reduced efficacy and efficiency of the direct interventions in large-scale applications may be conceptualized in the implementation framework (Bhatia *et al.*, 1989) shown in Figure 1. The components of an intervention may be dissected into the inputs, the processes, outputs, outcomes and impact of a program. Planners and managers usually have indicators for each of these stages (see Figure 1). The diminishing size of the arrows from inputs to impacts is illustrative of how the impact of interventions can be attenuated by constraints at each level. The increasing size of the arrows related to the 'societal factors' is illustrative of how each of these determinants operates more powerfully as the intervention program moves from a clinical setting to the community and ultimately toward influencing behavioural change at the household level.

Figure 1  
Direct interventions for improving child survival



To illustrate the importance of societal factors which ultimately modify the impact of direct interventions, the diarrhoeal disease control program in Egypt can be used as an example (National Control Project, 1988). The achievements of this program included increases in each of the following: use of ORT (from 44 per cent in 1984 to 66 per cent in 1988), ability of mothers to properly mix ORS (from 53 per cent in 1984 to 96 per cent in 1988), provision of ORT by private physicians, access to ORS via more than 6,000 pharmacies selling ORS, as well as increased local production of ORS and visits by children (1.2 million



in 1987) to the 3,200 ORT centres in Egypt (Gabr, 1988). Diarrhoeal mortality decreased during this intervention, with an overall decline in infant mortality, which is most evident in the diarrhoeal season (Gabr, 1988; National Control Project, 1988). At the 1988 NCIH conference, Dr Gabr presented the key factors for the success of this program as follows: (1) political commitment; (2) sufficient resources; (3) public mobilization through social marketing; (4) involvement and re-education of the medical and paramedical profession; (5) co-ordinated efforts between the central and peripheral levels and between governmental and non-governmental organizations; (6) a single semi-autonomous administrative unit; and (7) elaborate training programs and ongoing research to answer questions as they arose (Bhatia *et al.*, 1989). Clearly, the inputs into this particular intervention for diarrhoeal control went well beyond the simple provision of ORS packets.

### **Necessary pre-conditions for effective implementation**

Mobilizing political will and/or community support is essential to effectively implement interventions and ensure sustainability over time. Besides Egypt, positive examples of socio-political commitment leading to successful health outcomes include Costa Rica (rural expansion of coverage and resource re-allocation), Chile (effective targeting), Kerala state in India (community demand, political participation, literacy), and China (rural expansion of coverage, political infrastructure). At the Rockefeller Foundation Conference on 'Good Health at Low Cost' (Halstead *et al.*, 1985), five common factors necessary for health achievement were identified in the success stories of China, Kerala, Sri Lanka and Costa Rica. These were: historical commitment to health as a social goal; social welfare orientation to development; widespread participation in the political process; equality of health services coverage for all social groups (equity); and intersectoral linkages for health (Rosenfield, 1985). Negative examples of socio-political commitment include Mozambique (Cliff and Noormahomed, 1988), and Ethiopia (Chen and Cash, 1988; Hodes and Kloos, 1988) where wars and economic disparity preclude any meaningful commitment to primary health care.

The mode of implementation will affect the breadth and depth of the impact that an intervention can have. Interventions that are legislated (immunizations) or externally imposed on a population (vector spraying for malaria) will compel compliance, and achieve a broader coverage than if these same interventions are left voluntary. Such vertical interventions can be difficult to sustain over time, as exemplified by some of the failed malaria eradication efforts and by the limitations of immunization campaigns. Thus, the focus (and rhetoric) has shifted towards community involvement in the recognition that community ownership of primary health care interventions will improve their sustainability.

### **Constraints at the input level**

The interface of technology with field conditions has precipitated several service delivery problems, some more easily solved than others. Temperature sensitivity of vaccines has been an enormous obstacle to the delivery of immunizations, but developments in cold-chain technology including the use of solar energy as well as development of more heat-stable vaccines have helped in alleviating this problem. Non-caramelizing oral rehydration salts are an example of how environmental humidity and temperature were overcome by using citrate instead of bicarbonate in the formulation of ORS. Coated chloroquine tablets that are less bitter-tasting can improve acceptance and use of these on a prophylactic basis during pregnancy (D. Helitzer-Allen, personal communication, 1988).

Surmounting the obstacles to maintaining supply of needed medicines and vaccines is less easily remedied owing to the complexity of logistical, management and infrastructural problems involved. An added dimension to this is ensuring that supplies are not consumed before reaching the intended recipients. The emphasis on home-based oral rehydration fluids, rice-based ORS and dietary management of diarrhoea may lessen the need to maintain an external supply of ORS packets, however this strategy requires intensive education and promotion efforts. Not having the technology when needed can negatively reinforce health-seeking behaviour, particularly as it relates to preventive care. In Mexico, once mothers found out that vaccines were lacking at a well-baby clinic, their attendance dropped off markedly despite the continued provision of growth monitoring, health education or nutritional supplementation and the added incentive of a lottery for winning food baskets (Elder and Salgado, 1988).

Technologies can lose their efficacy over time. Efforts to reduce mortality from pneumonia face the theoretical eventuality of antibiotic resistance. The malaria eradication effort was largely undone by the development of vector resistance to DDT spraying, as well as by political, economic and environmental factors. Other interventions appear to be irreversible, e.g., smallpox eradication. In general, immunizations have the advantage of continued high efficacy and long-lasting effects, albeit with the disadvantage of the need for booster doses for some immunizations.

Technologies may only be effective if given at a certain time. A further challenge to the efficacy of immunizations is the development of immunogenic vaccines that can be delivered to very young infants before they are exposed to the infection. For instance, the optimal time for measles immunization in developing countries was changed to nine months in order to protect the child before it developed the disease (Heymann *et al.*, 1983). Vaccines are being tested that will hopefully be effective at six months of age, and therefore further expand the window for measles prevention (Whittle *et al.*, 1984; Job *et al.*, 1988). Another relatively narrow window for intervention has been tetanus toxoid immunization of pregnant women. In order for the infant to be optimally protected from neonatal tetanus, unimmunized pregnant women must receive two doses of tetanus toxoid one month apart and at least two weeks before delivery (WHO, 1986). As this has been operationally difficult to achieve, the policy of immunizing all women of childbearing age is now being promoted by the World Health Organization (1988a). Likewise, the nutritional interventions targeted at the weaning period require specific actions within a short period of a child's life.

### **Constraints at the process level**

The implementation process involves the interaction between the community and the health service, as well as between the provider and recipient. In the former case, the tensions that arise between the community and health service are not inconsequential. The community may face the following constraints: lack of information, non-democratic representation, factions, frustration with bureaucracy, demand for curative measures rather than preventive care, two-tiered health systems that offer quality only to those who can pay, ingrained cultural practices, economic hardship, and ecological and environmental problems such as deforestation, poor water and sanitation. The health service system on the other hand often faces the constraints of lack of interest or awareness of community issues, lack of professional capacity to address culture-specific determinants of health, tendency toward rigid uniform program objectives, lack of appreciation of the heterogeneity of communities and their constituents, need for demonstrable results, and



budgetary and time constraints. Establishing effective communication and co-operative action given the divergent perspectives can be a time and resource consuming process in itself.

On a micro level, the interaction between the provider and the recipient is often suboptimal, being adversely affected by class differences, lack of respect, inability to effectively communicate, or lack of incentives for the provider or the recipient. In Nepal, a study of the interactions between family planning clinic staff and clientele concluded that the manner in which the providers presented information tended to drive clientele away. Lower caste and lower socio-economic class clients received scantier, less accurate information, and less courteous treatment than those from the educated middle class (Schuler *et al.*, 1985). At the health system level, these attitudes can be expressed as inconvenient service hours, unavailability of staff, absence of 'user-friendly' conditions, and lack of outreach efforts. Overburdening is frequently cited as a problem, but how much of this overburdening is due to poor scheduling, poor allocation of resources and manpower, or true volume of or demand for services can only be determined on a locality-by-locality basis.

Provider incentives are key for performance, yet are particularly troublesome, given scarce resources. At the first contact level in the system, health systems often have had to rely on voluntary efforts by community health workers (CHW) whose incentives are cited as increased stature and respect in the community receiving the services. How sustainable this incentive is over time has yet to be determined. The sale of drugs or supplies may be another incentive to the CHW. To what extent this leads to a greater emphasis on curative measures that are more profitable has not been systematically examined. In general, there tends to be a greater emphasis on curative care as it is a more immediate felt need than preventive services (Berman *et al.*, 1987). Providers are often trained in the curative care model in hospital-based settings, with little experience in primary care or community medicine. Not infrequently, these providers then become trainers for the primary health workers who carry the orientation towards the curative paradigm to the village. This curative orientation obviously further dampens the potential impact of the direct interventions on long-term health status.

A poor quality of care provided by the CHW in large-scale programs has been attributed to lack of training, supervision and supplies (Berman *et al.*, 1987; Walt, 1988; Walt *et al.*, 1989). In Ecuador, an evaluation of the national CHW program demonstrated that CHWs retained less than 50 per cent of what they had learned one year after their two-month training course (Mangelsdorf, 1988). CHWs who lack the support of supervision and a dependable referral system may be compromised in the community's eyes by situations that arise that are more than they are trained to handle. The fact that an average of 40 per cent of the CHW's working time is spent on data collection (Bertrand, 1988) can obviously constrain effective performance particularly if the data are not used to improve the operational efficiency of the program. To be effective, CHW programs need more resources in terms of management, task and performance oriented training, and a supportive infrastructure for referral and supervision (Berman *et al.*, 1987; Walt, 1988; Walt *et al.*, 1989).

From the health service perspective, management and policy shortcomings may often lead to several 'missed opportunities' to make an intervention available when the recipient is available (WHO, 1988b). Inflexible policies that partition patient care to different times

and sites may lead to missed opportunities for reaching target groups with intervention. An example of this is the immunization of children and pregnant women, which frequently cannot occur at the same time or place or during a visit to a health facility for another reason. Additionally, misconceptions on the part of health providers still lead to false contra-indications to immunization, or missed opportunities, and indicate the need for periodic retraining. The WHO (1988b) 'missed opportunities' survey, conducted as an exit interview from clinics and health centres, should provide health service providers with concrete information with which to improve service delivery.

The cost of the intervention to the intended recipient obviously affects access. This can work in paradoxical ways because in some cultures free goods and services may not be as highly valued as those that are paid for. On the other hand, the use of services may be constrained by demands on the patient's or care-taker's time, limited resources and distance to the clinic. Preventive care may be a relative luxury, thus health seeking may only occur when something is wrong.

### **Constraints at the output level**

The outputs of the direct interventions, that is, the effective use by the recipient, usually require specific behavioural changes. These in turn require social support and other resources. Examples of supporting factors include mother's level of education or awareness, acceptance of the intervention by herself and her relatives and peers, the degree to which there are other demands on her time, and whether she has the ingredients necessary to implement the intervention in her home. For instance, a mother who has received an ORS packet will also need to recognize the threat of dehydration in her child with diarrhoea, accept and remember that ORT is the therapy of dehydration and not diarrhoea, and procure water, mix the ORS correctly, and most importantly, provide the time required to spoon-feed the child. Thus, social, economic, environmental and cultural dimensions increasingly enter into modifying what behavioural changes actually occur when interventions are introduced.

Pneumonia, malaria, and diarrhoea home-based care require that the mother be a diagnostician as well as a primary caretaker. Since the mother is responsible for the implementation of these interventions in the home, the importance of female education as a determinant for child survival is further underscored (Caldwell, 1979; Ware, 1984). Education by itself, or as a marker for some other attribute such as assertiveness or autonomy, may operate by optimizing the ability of the user 'to extract a higher quality of care' (Cleland and van Ginneken, 1988) or more effectively and judiciously implement home-based care.

Cultural barriers will often constrain the acceptance of new interventions. The fears surrounding administration of Western medicines during pregnancy illustrate the barriers to effective use of several interventions. Drugs, injections, or dietary changes during pregnancy may be rejected, adversely affecting pregnancy-targeted interventions such as chloroquine prophylaxis for malaria, prevention of neonatal tetanus by maternal tetanus toxoid immunization, or prevention of vitamin A deficiency in the infant by increasing dietary intake of green leafy vegetables by the mother. Similarly, nutritional interventions that involve continued feeding during illnesses or promote different weaning practices may face cultural resistance. Gender preference is another cultural factor that can be a substantial determinant of effective use of services as well as allocation of resources and care received at home (Chen *et al.*, 1981; Stanton and Clemens, 1988). How amenable to



change these norms are will vary from setting to setting. In any case, the negative effects of cultural factors cannot be surmounted by the health sector alone, but require a broad commitment by many national agencies.

Effective use is difficult to measure, yet its measurement is essential to demonstrate the impact of most intervention programs. Objective assessment of behavioural changes are time-consuming and costly, so consequently there are few data on effective use of these interventions. Effective use of ORT is one indicator of behaviour change, perhaps analogous to the acceptance and continuation rates used in family planning programs. A survey on diarrhoeal morbidity and treatment on a nationwide sample in Bangladesh assessed effective ORT use by questioning mothers as to (1) the promptness of ORS initiation (70 per cent reported starting ORS within the first day of a diarrhoeal episode); (2) correct preparation of ORS (50 per cent correctly administered); (3) adequacy of volume given relative to estimated requirements (reported mean volumes were insufficient for severe, dehydrating diarrhoeal episodes), and (4) perseverance with ORS until diarrhoea resolved (most episodes were treated for only one day) (Osinski, 1989). While the first two indicators of effective use in this survey reflect impact of ORS promotion, the other two indicators show the need for more specific messages and exploration into the reasons for the poor continuation rates for ORS. These sorts of intermediary indicators are perhaps more precise indicators of program impact than mortality rates, because infant mortality can be influenced by so many other factors while these intermediary or outcome indicators would presumably be intervention-specific.

### **Constraints at the outcome level**

Effective coverage means reaching those most in need of the intervention or those who are at high risk. Much has been written about the role of distance from a health centre or a main road in the context of access. However, the non-utilization of health services even by those who have access and live near services has increasingly been recognized. A survey done in Uganda selectively covered the 75 households closest to the 36 rural health facilities in Mbale district (Malison *et al.*, n.d.). In this population, only 21 per cent of children under one and 38 per cent of those one to four years old were fully immunized. Furthermore, 30 per cent of all recent deaths among these children were associated with measles although vaccine was available.

Because of social and economic heterogeneity in the population, a small subgroup is both subject to most of the disease risks and least likely to use the services of an intervention program. This phenomenon has been called 'social synergism' (Mosley and Chen, 1984). Targeting these high-risk groups is a way of achieving more effective coverage. Targeting schemes require adhering to a definition of high-risk groups to be reached. Otherwise, high coverage of those not in the target group may result in an increased likelihood of missing the most vulnerable since supplies and resources will be consumed before reaching those who are most difficult to reach (Cornia, 1987). Growth monitoring has been used as a tool for identifying high-risk children, however the emphasis placed on the process of weighing and measuring has detracted from providing these children with effective interventions (Hendratta and Rohde, 1987; Nabarro and Chinnoek, 1988).

The extent to which the outcomes of the direct interventions are undermined by competition from the traditional medicine sector or initial use of the traditional medicine sector before seeking Western health care has not been well determined. The user may turn to Western medicine too late for several reasons including the perception of it as

'strong' medicine, or of the hospital as a place to die. An alternative to competition would be combining traditional and Western medicine approaches; this has worked well for the barefoot doctors in China. An increasing sensitivity to the role of cultural beliefs and practices is emerging in international health, as evidenced in the number of preliminary ethnographic studies undertaken as part of the planning of interventions (Pillsbury *et al.*, 1987). Anthropological methods, including the use of focus groups, key informants and community and women's meetings have helped in elucidating pertinent health beliefs to guide the strategy of targeting an intervention.

### Constraints at the impact level

At the end of the line of implementation, there remain biological constraints that attenuate the demographic impact interventions can have in reducing mortality in developing countries. These constraints can be viewed as the competing risks for mortality that a child faces in developing-country settings. There are multiple competing causes of death. A child may avoid dying from one disease because of one specific intervention, but still be at high risk of dying from another through exposure to its environment. Whereas at the beginning of the decade it was assumed that each direct intervention would have an additive effect in reducing childhood mortality (Rohde, 1983), it is now recognized that the elimination of one disease does not necessarily assure survival.

For interventions that do not prevent disease, such as oral rehydration therapy, the child may not die of dehydration but may be more frail as a result of that episode of illness (Mosley and Becker, 1988). The added nutritional insults of repeated infections may predispose the child to further infection, decreased resistance, increasing malnutrition and increased risk of dying from other causes. Frailty may be not only the result of the synergism between malnutrition and infection, but also a result of specific immunological disorders that occur as a consequence of disease. An example of this is measles, which depresses cell-mediated immunity and may leave the host more susceptible to other diseases, and thus more frail.

Given the consequences of frailty from repeated infections, it should be clear that preventive measures will have a greater impact than curative. For example, studies have demonstrated that reducing the incidence of measles not only reduces deaths from measles but also reduces deaths from other causes as well (Hull *et al.*, 1983; Holt *et al.*, 1989). This delayed excess mortality largely due to measles-associated diarrhoea and/or pneumonia may be analogous to smallpox in Europe in the 1800s. Once smallpox vaccination became widespread in Europe, a significant mortality decline occurred, which was more than that expected, suggesting that delayed excess mortality had been averted as well (Mercer, 1985).

The impact of direct interventions may be augmented by the mix or complementarity of interventions. As there are biological interactions (synergism) among diseases, there may be a mix of interventions that is synergistic. The overall impact of a direct intervention depends on whether it has a neutral, substitution, or multiplier effect (Briscoe, 1987). Because immunizations such as tetanus toxoid or pertussis are disease-specific, the lifesaving benefits are at risk for 'cancellation' by competing risks. Nutritional interventions, such as vitamin A supplementation, or improvements in hygiene and sanitation are not disease-specific, and thus will have broader health impacts. A study of the causes of death in a well-vaccinated population in Gambia illustrates how an intervention may be 'necessary but not sufficient' for child survival (Greenwood *et al.*, 1987).



This study revealed that, despite high vaccination coverage, the infant mortality rate was 142 per thousand and a child mortality rate was 43 per thousand per year, with the leading causes of death being acute respiratory disease, malaria and chronic diarrhoea (Greenwood *et al.*, 1987). Given the lower child mortality rate compared to adjacent areas without high vaccination coverage, the high rate of immunization appeared to have an incremental effect on child survival, but would not be sufficient to reduce mortality rates further.

## Lessons learned

Walsh and Warren (1979) advocated that a mix of interventions: immunization with measles and DPT, maternal tetanus toxoid immunization, breastfeeding promotion, chloroquine treatment for febrile episodes in children where malaria is prevalent, and oral rehydration of diarrhoea, could be applied as 'a core of basic preventive care' to which 'all types of selective primary health care could be added or subtracted'. With time, the constraints to the application of these technologies have become evident, and the implementation of these interventions has turned out to be a much more involved process than anticipated. The application of 'easy' technologies has revealed the complexity of the problems that must be solved.

One approach to solving the technological problem is by broadening the scope of the existing direct interventions, for example, by promoting the nutritional or dietary management of diarrhoea (Brown and Bentley, n.d.). This adds a broader base to the interventions for diarrhoea, making the intervention less diarrhoea- or dehydration-specific. The development of locally available weaning foods for use during diarrhoeal episodes also incorporates consideration of social and cultural factors, assuming that locally available foods will minimize expense and enhance cultural acceptance.

Another strategy is to take a more integrated approach to a specific disease problem. Malaria eradication and control efforts provide many lessons here. The control of malaria in the 1950s by a centrally-directed strategy of household spraying with DDT coupled with presumptive treatment of febrile illnesses in Latin America and Asia produced a substantial decline in infant and child mortality at a pace that has been difficult to match in subsequent years (Molineaux, 1985; Hill and Pebley, 1988). However, the emergence of vector resistance to DDT and parasite resistance to chloroquine reversed the impact of malaria programs, and levels of malaria morbidity have returned to pre-eradication era levels in many countries. This led to consideration of a new model program for malaria called 'integrated control' (Clyde, 1987). This involves stratification of the control measures according to the main problems of the area in question. Usually, this results in a combination of residual insecticide spraying, larvicidal measures, and case management. Whereas a 'blueprint' for eradication was applied in the past dependent on a single technology (DDT), now it is necessary to decide what mix of strategies is best adapted to local conditions. This decentralization has been necessary in order to deal with the diversity that exists between geographic areas with regard to political will, magnitude of the disease burden, vector resistance, parasite resistance, and the feasibility of specific control efforts.

Diarrhoeal control efforts could likewise adopt an integrated control strategy that could include multiple control efforts targeted at the sources of diarrhoeal pathogens (water supply, exposure to animals); personal hygiene (water access, sanitation, soap); measles immunization; and case management of diarrhoeal disease that would include ORT, dietary management of diarrhoeal episodes and treatment algorithms for dysentery and chronic diarrhoea (Feachem, 1986). The effect of these interventions could be greatly

augmented by other development efforts such as promoting female literacy, improving agricultural practices, and establishing better sanitation and access to water. Such a multifaceted approach is likely to produce a broad and sustained impact on childhood mortality in developing countries. It obviously requires more resources, intersectoral co-operation and community involvement.

Finally, there is a need for improved management, supervision, and training in health systems in developing countries to improve their operational efficiency and effectiveness. This would include reformulation of information systems so that they can supply useful information to the periphery in a timely fashion to realign or improve service delivery. It is necessary to develop ways to feed back information to the community and test whether this helps in sustaining community involvement, participation and the primary health care activities over time. Better use of project evaluation could lead to better ascertainment of what is working and to specific ways to improve service availability, quality, and use of information systems. Comparison of the outcomes of different modes of intervention within the same health system could be instructive in determining what works best in specific settings.

In recent years, there has been a trend towards decentralization and a shift of control to the community level. The donor and community relationship continues to evolve, and could be conceptualized in a different paradigm, that of the donor as catalyst, who facilitates understanding of health problems and aids the change agents within a community to solve them. Integration with income-generating activities to aid in financing health care helps in promoting a broader developmental impact. Often the most important result of any successful development project is the community recognition of its own ability to mobilize and create change. Health interventions could be used as catalysts in community development, as these interventions may serve as springboards for other activities that directly address the community's perceived needs. Again, this is in line with Korten's learning process approach that advocates planning with the people and linking knowledge building with action in addition to embracing error (Bhatia *et al.*, 1989). The application of this learning process to the implementation of the direct interventions will continue to yield valuable insights that can guide future efforts.

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## Chapter 44

# Culture accommodation of primary health care: a framework for assessing the contribution of patient-provider fit to health transitions

Nick Higginbotham and Linda Connor

### Introduction

This paper takes as its point of departure the proposition that mortality declines in the developing world result from the confluence of two forces. One force is equitable access to health technologies of proven preventive and curative effectiveness. The other force is the existence of social systems that produce social valuation of health and control of healing resources. The precursors of such values are provision of education, female autonomy, political participation, family income levels, and cultural beliefs about the efficacy of health action (Mosley, 1983; Caldwell, 1986). Indeed Kunstadter (1985) suggests that it may well be a society's capacity to implement needed programs in an effective way that accounts for population health. Similarly, Caldwell and his associates argue that low mortality is a result of the combined presence of comprehensive care and a society highly sensitized to the need for healing. Health personnel play an essential role in the sensitization process 'because people are often reluctant to employ a system that inconveniences them or fails to win their confidence' (Caldwell *et al.*, 1989:378).

If we assume that a significant proportion of health transition status is attributable to the interaction of social system and health system characteristics, then we must examine this interaction to specify the mechanisms whereby values, social relations, and technology combine to produce better health. One possibility is that some health systems are designed to be relatively more permeable to the felt needs of service beneficiaries. Permeable health systems amplify indigenous health efforts and selectively blend technological innovations into local efforts rather than usurp self-reliance.

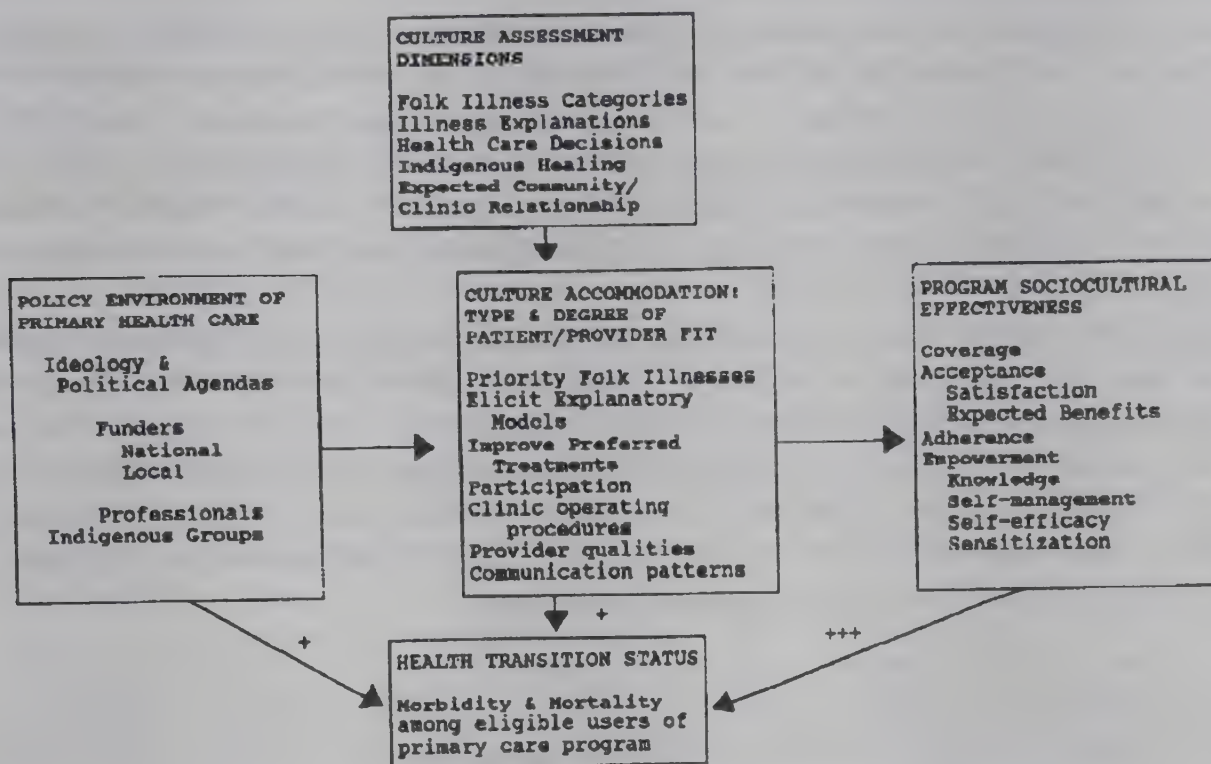
Culture accommodation is the term applied to services that are permeable to community expectations and mobilize community involvement. This paper defines culture accommodation in relation to primary health care in developing countries. A research framework is proposed for assessing the contribution of culture accommodation to the health transition status of developing countries.

### Overview of culture accommodation and health status

Figure 1 presents a framework linking culture accommodation processes and health outcomes. Primary health care units can be assessed to determine the extent to which the services offered are continuous with culturally patterned health behaviour and culturally determined expectations of healing that beneficiaries bring with them to treatment. Culturally accommodating programs strive to represent these distinct cultural patterns formally and informally in their policies, plans, priorities, and operating procedures.



Figure 1  
Culture accommodation – research framework



Planners of sensitive programs undertake a culture assessment in order to understand how clients and their families interpret illness experience, conceptualize the problem, and respond to it socially and therapeutically. Such programs take into consideration community expectations regarding participation in program policy making, clinic social atmosphere, cost, and location of care giving. Accommodation also involves fulfilling expectations regarding the treatment staff: their social background, life experiences, and training, as well as their style of communicating with clients.

Culture accommodation is postulated to influence health status through a direct effect on clinic socio-cultural effectiveness. Accommodating primary care services are a fully utilized and satisfying component of community life. They also empower users to look after themselves and their families and to view health gains as achievable. Maximizing the socio-cultural effectiveness of primary care maximizes treatment effectiveness. Subsequently, mortality levels will fall in correspondence with the actual efficacy of the technologies and behaviour change programs made available through primary care. Level of morbidity is expected to be even more sensitive to the influence of socio-cultural effectiveness, especially when illnesses are defined according to culturally meaningful categories.

Finally, our framework acknowledges that it is the policy environment, generated in the political sphere and through which primary health care has evolved, that ultimately determines the degree of culture accommodation. Authoritarian regimes with highly centralized control of government functions develop primary care as vertical programs within the health sector. Such circumstances produce minimal accommodation as do

settings in which local care giving is dominated by the professional interests of medical providers (Higginbotham, 1987).

Culture assessment and accommodation

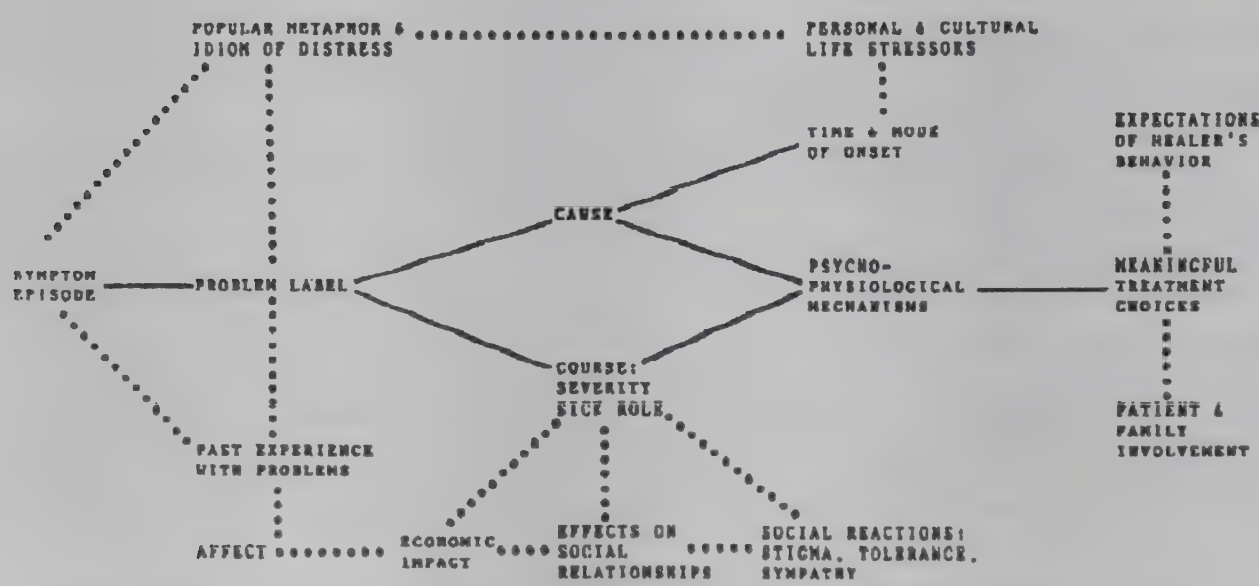
Our framework poses four basic research questions in relation to any primary care system. First, what are the elements of primary health services that should be adjusted to fit the cultural expectations and practices of users? Second, do these adjustments produce more effective programs in socio-cultural terms, such as acceptance and coverage? Third, does program socio-cultural effectiveness translate into population health benefits? Finally, what kinds of political and economic structures permit program accommodation to flourish?

To answer the first basic question, we examine ethnographies of health and illness across societies and review the ways people conceptualize, avoid, and respond to illness that merit representation in health program structure and operations. We suggest five core dimensions of primary care accommodation. Programs will vary in the extent to which they respond to: (a) folk illness priorities; (b) cultural reasoning about illness aetiology; (c) treatment decision-making; (d) the strengths and limits of indigenous healing; and (e) expected community relationship with the care program.

(a) Burden of folk illnesses

The first dimension concerns the perceived burden of illness. To what extent does the program address culturally identified illness experiences that are a priority to community members?

Figure 2  
Relationship between client explanatory model and semantic illness network



A fully accommodating service would attempt to survey the incidence and prevalence of folk (indigenous) illnesses. The method for measuring morbidity is a combination of intensive field observation and epidemiological survey. Interpretive theories guide the search for cases. Illness categories are conceived as socially produced and culturally constructed 'syndromes of illness experience'. In the words of Good and Kleinman (1985),



these syndromes arise 'through the interpretation of personal distress and social realities in the context of local knowledge and local systems of power'. Good (1988) further argues that biology both constrains and shapes human experience but 'illness realities' are never reflections of biology. Biology becomes human illness only as it is given meaning, is interpreted and articulated, and enters into social relations. Likewise, healing is directed at illness realities as they are culturally fashioned, rather than at biology *per se* (Good, 1988:694).

Folk illness syndromes are made up of many elements shown in Figure 2. In the centre is the 'Explanatory Model' of an illness episode. The sufferer and his or her primary group generate reasons explaining why the illness is being experienced at this time, what it is called, how long it will last and what are suitable treatments (Kleinman, 1980). Part of the illness is a set of socially produced meanings and powerful emotional experiences which are termed 'semantic illness network' (Good and Good, 1982).

To identify priority illnesses, epidemiologist and anthropologist collaborate with community members who designate afflicted persons. A representative sample of these cases is drawn; people are interviewed and examined. The case material is further processed by cultural informants who classify cases into culturally salient illness categories. The reliability or 'competency' of our informants in relation to cultural knowledge of illness categories can be examined through consensus analysis. This method uses the pattern of agreement or consensus among informants to make inferences about their knowledge of the answers to particular questions. It assumes that the correspondence between any two informants is a function of the extent to which each has knowledge of the 'culturally correct' answer. Consensus analysis is useful to establish whether community members maintain cultural models of specific illnesses, and whether such models differ between groups, such as treatment providers and patients (Garro, 1986).

Recent ethnographic work related to diarrhoea shows the presence of well established folk taxonomies for this disease (see Coreil and Mull, 1988). Weiss (1988) has compared the features of folk classification in different cultures, noting the importance that people assign to quality of the diarrhoeal stool, perceived seriousness, complications, anxiety, and spiritual obligations in making distinctions among types of diarrhoea. Latino cultures, for example, perceive and respond differently to four types: *empacho*, evil eye, fallen fontanelle, and 'worms' (Kendall *et al.*, 1984).

In sum, the burden of illness for a culture group is the number of individuals who are identified as experiencing the various syndromes designated as priority problems by community constituencies.

### (b) Illness causation

To what extent does the primary care system acknowledge the cultural reasoning about the aetiology of priority illnesses? The sufferer will hold beliefs about the source of distress ranging from the mundane to the divine. These hypotheses may change across the duration of the episode, often in response to treatment failure or success, and fluctuating signs in the personal, social or spiritual realms. Fabrega (1982) notes that illness episodes provide social diagnoses for some groups, reflecting areas of interpersonal weakness, disruptions, or vulnerabilities within the primary group.

We elicit from our informants cultural ideas of aetiology because these interpretations suggest a range of plausible plans for intervention. They also reveal core assumptions linking the natural order or cosmology to health. Choice of a certain healer or self-

medication follows from the illness label, perceived cause, severity, and from reasoning about what must change to restore health. For example, a Balinese healer is sought when a young woman has a sudden onset of weeping and writhing because such healers can exorcise the possessing entities or *babai*. Similarly, a Hawaiian *kahuna* would be employed to ritually appease a guardian spirit (*aumakua*) whose anger with a family was causing an illness. In Central Australia, the family of an ill Aboriginal man may seek the skills of a *ngangkari* if they believe he has been 'sung'. A Sinhalese mother responding to mild diarrhoea in her small child may consider it a normal consequence of weaning and administer weak coffee, a 'heaty', 'drying' home remedy, rather than use oral rehydration salts or seek a practitioner (Nichter, 1988).

Two research steps are needed to fully map illness reasoning. First, case histories are elicited among representative cases. Informants describe the circumstances surrounding the onset of a given folk illness. In this way, Garro (1988) found that high blood pressure among the Ojibwa is seen as an episodic illness that comes and goes for a number of reasons, including too much worrying, alcohol consumption, and over-exertion. Second, sentence frame interviews are used in a larger survey. Each category of illness is paired with all possible causes and subjects evaluate the truthfulness of the resulting statement. The pattern of answers reveals beliefs about what conditions must be changed to improve the burden of illness.

Among Mexican Indians studied by Garro (1986), not eating or eating too many 'hot' or 'cold' things were common causal explanations for gastro-intestinal, diet-related illnesses. This approach can be used both within a culture and in cross-cultural comparisons to represent the organizing concepts or dimensions of meaning people employ to represent illness experience. However, some anthropologists would argue that these highly structured techniques are too artificial to produce meaningful data with non-literate groups.

### (c) Health care decision-making

Primary care planners also need to comprehend decision-making related to treatment of each illness syndrome and people's evaluations of treatment alternatives. Specifically, planners must learn from cultural informants what treatment sources are selected for each syndrome. What principles of action do people have in mind when making treatment decisions? What treatments are most likely to succeed or fail? Which treatments are preferred but unavailable?

Methodologically we examine the case histories of representative patients and construct the group's pattern of use of treatment alternatives. A larger survey pairs each syndrome with each treatment and asks informants to evaluate the likelihood of a positive outcome.

To learn what other decision criteria are important, we pair together treatments and ask why one would be preferred to another. Young (1980) did this among Mexican Indians and found four principal considerations: gravity of distress, knowledge of home remedy, perceived effectiveness of healer, and cost. By considering all responses to a particular treatment, we construct a full description of the considerations that lead to its use. We also elicit the order of use of treatment choices.

These data combined reveal each treatment's dimension of preference and perceived efficacy. We may find, for example, that self-treatment for a certain syndrome is preferred because it is inexpensive, accessible, and under family control, but its effectiveness is unreliable. Likewise, treatment at a university clinic 500 kilometres away is deemed



efficacious, but least preferred because of cost and the strain of dealing with unfamiliar bureaucracies. Obviously, primary care organizations need to know the bases for treatment decision-making to evaluate how well their services fit decisional criteria.

Simpson (1988) found, for example, that the Costa Rican poor selected traditional massage therapists, *sobadores*, over the modern technology of the National Health System for remedying *pega*, a folk illness term for gastric upset. This occurs because physicians and nurses discount the reality of *pega* and offer oral solutions that appear little different from the traditional use of herbal teas. Hence, the mother has endured the travel inconvenience and impersonal atmosphere of the modern clinic to receive what seems to be a traditional remedy when the local *sobadores* provide a more plausible traditional cure in a social atmosphere that is much more satisfying.

Morice's (1978) ethnographic work among the Pintupi Aboriginals in Central Australia is relevant to the issue of accommodation. His medical thesis focused on Pintupi speakers' vocabulary of 'psychiatric' terms, particularly semantic features of emotional distress related to anger, fear and grief. Morice shows that Pintupi emotion categories often imply assumed causation. For example, the grief term *watjilpa* connotes separation from traditional land or relatives. Treatment options associated with psychiatric terms included visits to traditional doctors, reassurance by relatives, journey to one's homeland, or temporary exile of an offender. However, interpretive theory would view as fallacious the assumption that Pintupi terms which appear similar to Western clinical categories are local equivalents of psychiatric disorder. Western nosology cannot be validated across cultures simply by eliciting conceptually similar terms (Kleinman, 1977; Good and Good, 1982).

#### (d) Indigenous healing

Primary care can be appraised regarding the extent to which it interrelates with existing pathways of healing. The program may relate to indigenous care in two ways. First, it may attempt to add beneficial elements to existing preferred treatments or remove any toxic components in order to improve their effectiveness. Second, new services may need to be put in place because changing social conditions generate an illness syndrome for which traditional treatment is unavailable or changing cultural understandings render use of a former treatment unpopular.

Knowledge of community decision-making may reveal that a preferred form of self-care or folk healer practice is not always found effective for a particular illness. A primary care program could adopt several strategies for improving indigenous care. First, it could facilitate local competency to apply recognized curative means. Second, wider access to indigenous therapeutics may be enhanced. This may involve removing government and economic barriers that undercut healers' opportunities to learn and use their craft. Third, efficacious elements are added to indigenous therapeutics that derive from within the indigenous medical system. Fourth, bioscience technologies are blended with indigenous treatments. Finally, people are encouraged to abandon any known toxic elements of self-care or folk healing that impede healing or exacerbate illness.

Hull (1979) demonstrated how these strategies could improve the traditional self-reliance of rural Javanese women in the area of maternal and child care. A primary care program would encourage positive existing practices, including birth attendance by the mother's family and traditional midwife, delayed cutting of the umbilical cord, breastfeeding, strenuous efforts to promote the infant's health through home remedies, and wide child-spacing. Bioscience contributions to local care would be lessons on hygiene

and aspects of home delivery techniques for village midwives. Similarly, midwives could learn to avoid the potentially dangerous practice of inserting the hand to extract the placenta or using an unsterilized blade to cut the cord. Given the absence of traditional routine antenatal monitoring, a modest program could be started which would involve a single visit for every woman who thinks she is pregnant. High-risk women would be detected and provided with periodic monitoring by the village health worker. Hull concluded:

Our two-year research project among Ngaglik women showed us many ways in which modern programs can benefit from an understanding of traditional health care: by building on the basic approach of self-reliance, by incorporating specific traditional practices that are beneficial, and by sympathetic treatment of those traditional practices that are ineffective or potentially harmful. We became ... convinced that careful and sensitive study of what women are currently doing is essential to the design and implementation of effective modern programs (Hull, 1979:324).

Recently we have extended these strategies to primary mental health care and suggested ways psychiatric services could be reformulated in Bali (Connor and Higginbotham, 1984; Higginbotham and Connor, 1984, 1989). A multiple-option system creates or strengthens diverse small-scale care settings. At the hub is the local primary care clinic, staffed by outreach nurses, who co-ordinate their activities with local healers, patient family, and alternative community houses. In time, Bali's mental hospital would be depopulated and psychiatry would invisibly work through the positive ties that these nurses have with Balinese households.

#### **(e) Expected community relationship with health program**

Finally, community constituencies may hold expectations about how they will relate to the primary care program in order to attain health and social benefits. Whether these expectations are met or violated during user contact will significantly influence the patient-provider relationship and program acceptability in general (Higginbotham, 1984:240-242; Higginbotham *et al.*, 1988).

An example is the issue of community control and involvement. Have local leaders been called upon to sanction or sponsor the service? Are personnel selection and funding allocation in the hands of the community or outside authorities? Rifkin and her associates define community participation in primary health care as the ability of local groups to improve their health care by exercising effective decisions to force a shift in resources with a view toward achieving equity (Rifkin *et al.*, 1988:933). They suggest five indicators for measuring degree of participation, including how the local health needs were assessed; breadth of leadership making decisions; involvement of existing community groups in organizing the program; amount of program resources local people contribute and control; and extent to which local groups manage the program itself.

A second set of questions concerns expectations of organization structure and activities within the clinic or program. Recipients may have definite preferences regarding location, cost, treatment within the home, types of care facilities, and the clinic's home-like atmosphere. When a person is suffering, program organizational features may become more salient than, for example, whether the treatment is indigenous or foreign, traditional or modern (Leslie, 1977). The user may be especially concerned with how much it will cost,



when the clinic is open, the treatment's promised effectiveness, and how long before it takes effect. Some users may need to know whether the clinic provides a supportive and sympathetic social atmosphere.

Community members also have definite ideas about program personnel: their skills, social background and style of relating to users. For some, participation of indigenous healers would enhance program attractiveness; for others it would diminish service credibility. In general, the greater the matching of social experience between patient and practitioner, the more likely that information sharing will be accurately perceived and health messages persuasively communicated and implemented (Higginbotham *et al.*, 1988).

The Central Australia Aboriginal Congress Health Clinic in Alice Springs demonstrated how primary care planning can be designed to ensure that the beneficiaries have a sense of control and responsibility for new programs. The Clinic pursued consultative research in program designs for both childbirth and disturbed behaviour. Repeated visits by clinic researchers to remote Aboriginal settlements permitted the service model to be discussed and amended by families who shared their knowledge and personal experience of these matters (Carter *et al.*, 1987; Dunlop, 1988).

In review, ethnographic data of health and illness suggest the critical dimensions of primary care culture accommodation for designated social groups. A set of objective criteria are specified for each dimension that independent observers use to rate the extent to which a primary health care program accommodates to cultural expectations and practices. Data collected from interviews, observations, and archival material about a particular program would be integrated to make these judgements and yield scores indicating both the type and the level of program culture accommodation.

### Program socio-cultural effectiveness

The culture accommodation framework poses a second basic research question: is there a positive relationship between level of program cultural accommodation and degree of program socio-cultural effectiveness? The socio-cultural effectiveness of primary care is the hypothesized direct outcome of accommodation measured independently in terms of user attitudes and behaviours.

Four indices of effectiveness are suggested. First, program *coverage* is the assessment of whether the primary care system is being appropriately utilized by all patients who could benefit from it, calculated by determining the proportion of people in need of the service who are receiving it (Tugwell *et al.*, 1985). We emphasize that perceived need is culturally constructed and refers to cases of priority folk illnesses. Given the community integration of an accommodation service, it would be expected to reach more cases and be utilized more fully.

Second, *acceptance* is the extent to which community members endorse the program as satisfying and expect it to produce beneficial social and health outcomes. Patient satisfaction is widely regarded as a key index of medical care acceptability and is associated with such other important outcomes as adherence to therapeutic regimen, understanding and retention of medical information, and continuity of care (e.g., Lewis *et al.*, 1988). Satisfaction scales typically include items regarding doctor conduct, access-convenience, technical skills, waiting time and cost of care (Ware and Hays, 1988). Another component of acceptance is situation-outcome expectancies: the patient's perception that the treatments offered will lead to health gains, apart from any contribution that the patient

himself or herself may make to the healing process. Expectancies are significant determinants both of adherence to care regimen, and of psychological states favourable to health improvement (e.g., Higginbotham *et al.*, 1988).

Patient and family *adherence* to primary care providers' recommendations and treatment regimen is a third index of socio-cultural effectiveness. Adherence requires self-regulation as well as social influences from primary group and provider. This complex process can be divided into three stages (Kristeller and Rodin, 1984): compliance – the initial agreement to follow a clinical prescription; adherence – the continued following of a negotiated treatment plan under supervision, in the face of conflicting demands; and maintenance – the incorporation into a general lifestyle of unsupervised health-related behaviour. Relationship variables in the health-care setting, such as poor communication or rapport, correlate strongly with rates of compliance and adherence, while social network influences and characteristics of the treatment regimen itself dominate the maintenance stage (Bloom, 1988; Higginbotham *et al.*, 1988; Rodin and Salovey, 1989).

Finally, an effective program *empowers* beneficiaries to actively appraise illness events and assert control over treatment responses. Psychological empowerment is described generally as the connection between a sense of personal competence, a desire for, and a willingness to take action in the public domain. It is thought to be a process by which individuals gain mastery or control over their own lives and democratic participation in the life of their community (Zimmerman and Rappaport, 1988). Proponents of primary health care see empowerment of community members as both cause and consequence of their participation in planning, managing and evaluating local services (e.g., Rifkin *et al.*, 1988).

Empowerment is a broad concept related to other psychological variables affecting health behaviour such as health locus of control (Wallston and Wallston, 1978), desire for control (Rodin and Salovey, 1989), and self-efficacy (Bandura, 1988). Programs promoting empowerment of illness management would impart knowledge about illness conditions and teach self-reliance. Beneficiaries would develop action-outcome expectancies – see the illness situation as modifiable through one's own actions to produce improvement – and greater internal locus of control, presuming that oneself, rather than powerful others or forces of fate, is responsible for the course of illness. A facet of empowerment is sensitization to illness and risk of death that Caldwell and associates (1989) describe for Sri Lanka. Traditional beliefs and official pressure combine to sensitize Sri Lankans to the potential for avoiding unnecessary deaths due to illness and to persist in seeking alternative treatments until recovery occurs.

### Health transition levels

Perhaps our most important basic research question is whether accommodation is linked, through socio-cultural effectiveness, to levels of mortality and morbidity. Although this proposition is untested, there is evidence that socio-cultural effectiveness, especially coverage (e.g., Halstead *et al.*, 1985; Van Lerberghe and Pangu, 1988; Warren, 1988), adherence (Friedman *et al.*, 1986), and sensitization (Caldwell *et al.*, 1989), does affect mortality levels.

For example, data from the four national cases reviewed at the 'Good Health At Low Cost' (GHLC) conference indicated that equitable population coverage by primary care programs was essential to mortality declines. Mosley noted 'it seems clear that the fundamental underpinnings of any mortality reduction effort involve the political



commitment to equity as well as policies and strategies to provide essential services to all' (Mosley, 1985:242). Kunstadter (1985:236) added that equity of coverage seems to be more important at the later stages than at the onset of the mortality decline. His reading of the case studies suggested that a large portion of the mortality decline took place when rural services were limited primarily to disease-specific programs. Moreover, Caldwell and his co-workers combined survey and intensive field methods to examine how sensitization to illness contributes to low mortality among Sri Lankan Sinhalese. The ancient cultural preoccupation with the fight against sickness underpins a highly efficient use of curative services, both modern and traditional, to avoid unnecessary deaths (Caldwell *et al.*, 1989).

Methodologically, the culture accommodation framework lends itself to causal modelling (e.g. Asher, 1983), in which a causal pathway is estimated from program accommodation (independent variables) through socio-cultural effectiveness (intervening variables) to health transition status (dependent variables). A longitudinal design is ideal; data on program qualities are gathered first, followed at appropriate time intervals by measures of cultural effectiveness and subsequently health outcomes. In practical terms a test might focus on a specific community cohort eligible for program services, such as pregnant women, and follow them at a population level before and after their contact (if any) with the program. If a program is well established and stable, with an adequately documented history, it may be possible to test the model with cross-sectional data.

The major problem with this framework is that the unit of analysis is individual programs: primary health clinics or service units of some description. It is necessary to study a substantial number of these units in a district or country in order to meaningfully perform multivariate analyses on the study variables and have enough statistical power to detect significance relationships. One approach to partly overcome this problem is to measure 'perceived' clinic accommodation among the program users. Patient-family perceived accommodation could be used to validate the researcher's observations of the program and also be correlated with patient-reported indices of clinic socio-cultural effectiveness and subsequent health benefits. The other methodological dilemma is what set of health outcome indices to use. Obviously indices derived on program objectives are relevant. The lessons from the GHLC case studies is that mortality rather than morbidity rates were responsive to program availability. On the other hand, we could hypothesize that the illness burden among eligible users is a better index of the effects of culture accommodation, given its emphases upon self-care and empowerment (e.g. Joseph, 1985).

### **The policy environment and political structures**

The fourth basic research question concerns the kinds of political structures that permit culturally accommodating services to flourish. Promoters of primary health care view it as a low-cost and efficient means of ensuring a more equitable form of health care, especially for poor populations throughout the world. Few health-related problems have escaped the purview of primary health care proponents. In the early 1970s, planners largely overlooked the problems inherent in implementing this approach, despite failures of community oriented development programs a decade or two earlier (Uphoff *et al.*, 1979:14-28; Rifkin, 1982). The barefoot doctors of China, with their accomplishments in serving the health needs of rural populations, inspired the move toward a primary health care solution on a world-wide scale. But the socio-political system in which the Chinese health system is embedded was often ignored as a major fact that underpinned its successes and make this approach difficult to replicate in other countries.

In the framework of the selective primary health care model, planners who conceptualized primary health care as the delivery of specified health services to a potentially ill population did not necessarily value community participation as a means to achieving development goals. Proponents of a comprehensive, or community-based approach, argued that primary health programs cannot be successful without conditions of popular political participation, in which even the most needy and least privileged people are encouraged to voice their own priorities and participate in development programs at every stage and level.

The doctrine of participation has gained popularity as a practical solution to pressing health system problems even amongst policy-making constituencies where there is no adherence to broader ideals of participatory democracy. The evidence from China shows that authoritarian governments also may be associated with high levels of participation in health and education. It is sometimes argued that community health programs engender a level of grass-roots political participation that will gradually penetrate other areas of the polity. This formulation is attractive to those involved in small-scale programs at the local level. However, Caldwell's study of countries which are superior health achievers (Caldwell, 1986:173-174) suggests that these countries have national-level political structures characterized by 'an open political system, a largely civilian society without a rigid class structure, a history of egalitarianism and radicalism and of national consensus arising from political contest with marked elements of populism' (Caldwell, 1986:182).

The manner in which political participation is conceived by planners is often inimical to development goals and ignores customary forms of participation that already flourish. Local populations comprise numerous, frequently cross-cutting groups organized around commonalities of kinship, caste, status, economic interest and religion. Instead of striving to understand local organizational principles, planners frequently attempt to create new groups that operate on principles irrelevant or antithetical to existing institutions. Whilst customary organizations and social relations may not be the best means to achieve all development programs, they cannot be ignored.

Assessments of the implementation and effectiveness of primary health care programs need to incorporate an analysis of all possible dimensions and contexts of political participation. This requires not only an understanding of formal institutional political structures, but also an appreciation of the way in which customary organizations and social relations mobilize people to engage in communal action. The much-discussed issue of female autonomy, for example, could be analysed in the latter terms. Likewise, such an approach could shed light on the apparent paradox of participation under authoritarian political systems, alluded to in the above discussion of China.

The examination of indigenous forms of political mobilization, their relation to institutional politics, as well as their relevance to health service development, should parallel the analysis of the cultural expectations and practices of health service users discussed in the earlier part of this paper. Justice (1987) has provided evidence of the difficulties encountered in programs where overly rigid, centralized bureaucracies have prevented flexible program development. The creation of appropriate political and administrative structures for primary health care service development is essential to the process of culture accommodation as outlined in this paper.



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## Chapter 45

# *Jeitinho brasileiro: cultural creativity and making the medical system work for poor Brazilians*

Marilyn K. Nations and Monica Facanha Farias

The typical Carioca (resident of Rio de Janeiro, Brazil) is an improviser ... a man who is asystematic, because of the sea. The samba is his religion. There are no set steps to the samba. Everyone has his own way of doing it. Some shuffle their feet, others lift them (*The New York Times Magazine*, March 19, 1989, 6:95).

### **Child health in Northeast Brazil: a crying shame**

Health realities are harsh for infants and children in tropical northeast Brazil. A 1987 UNICEF-sponsored survey (Victora and Barros, 1989) documented the poor health status of children in the drought-stricken state of Ceará: infant mortality rates 106 per 1000 live births, rising to 112 in rural areas; high morbidity and mortality from preventable diarrhoeal diseases and dehydration (26 per cent of children had diarrhoea in the previous week and approximately 40 per cent of infant deaths were diarrhoea-related); and low adherence to even basic diarrhoea preventive strategies due mostly to the absolute lack of infrastructure: piped-in water remains unavailable to 88 per cent of children; toilets were absent in 70 per cent of rural homes; 10 per cent of children were never breastfed, with mean breastfeeding duration only 3.5 months in urban centres and 4.5 in rural communities, and only half of children aged 12-23 months had adequate vaccine coverage (three doses of DPT, three of polio, one of measles, and one of BCG).

Much of the blame for the precarious health of poor Brazilian children can be placed on the inadequacies and misappropriation of the power institutions in the country. A critically ailing economy and a failure to allot funds have crippled Brazil's health care system. Squeezed to its limits by a foreign debt of \$115 billion and by the highest inflation rate, 900 per cent, in Brazilian history, the Federal Government has no money to spare for health programs. Bankrupt city budgets and deepening economic crisis in 1989, have shut down hospitals and even emergency rooms throughout the country and turned away the sick and injured for lack of staff, beds, medicines, money and equipment. Those public hospitals with doors still open are overcrowded, understaffed, ill-equipped and poorly stocked. To make matters worse, waves of strikes by doctors, nurses and workers for better pay further paralyse a system that never was at its best. A recent World Bank analysis (McGreevey, 1989) underscored Brazil's unacceptably high health costs, frequently higher than those in developed countries. Health economists place the major blame on the role played in the medical-hospital system by physicians, who promote high-technology services that are frequently superficial and expensive, and benefit few. Incredible as it sounds, 'Brazil's government spent more in 1981 on some 12,000 high-cost patients than on the sum total of basic health services and disease control efforts intended to serve 41 million people' (McGreevey, 1989:14). For instance, in 1979 alone Brazilians were subjected to about 40 million X-ray examinations, most of them having no diagnostic value and many of them



potentially contributing to iatrogenic disease (McGreevey, 1989:18). And Brazil, with the highest national rate of caesarean deliveries in the world (31 per cent), performed an estimated 186,000 unnecessary surgical procedures in public sector hospitals in 1979 at a cost to the government (INAMPS) of some \$34 million; in private hospitals that serve the wealthy, the rates climbed even higher to at least 50 per cent (McGreevey, 1989:20). Meanwhile, 29 per cent of 4.86 million Brazilian women who were pregnant or gave birth during 1981 had no prenatal care (McGreevey, 1989:21); in the Northeast 40 per cent of births by poor women occurred outside hospitals at home (Victora and Barros, 1989:4).

There appears to be a head-on confrontation, that has no easy solution, between the masses of impoverished Brazilians crying for basic health services, and the organized institutions of health, unable, unwilling, or uninterested in providing these services. The health problems of the poor are not going to miraculously disappear (despite strong popular belief in the divine power of spontaneous cure) and health institutions are not likely to change direction on their high-cost, high-technology curative path in the foreseeable future. Recent, much-needed government reforms are moving slowly in the northeast to rebuild Brazil's crumbling health care system by forming a single health ministry to administer funds, regionalizing health networks (SUDS), transferring decision making and budgets to local municipalities and equipping hospitals and clinics in remote, rural areas.

### **An alternative response: alternative medicine**

In at least one state, Ceará, located in northeast Brazil, people are searching for ways to resolve this serious health care conflict. Their answer has been to develop alternative models of delivering primary health care which largely circumvent many of the notorious access barriers which block people from services. Since the early 1970s, impoverished communities in the interior of the state of Ceará have taken the initiative, against all odds, to solve their health care predicament. Small groups of community leaders began organizing around the dangers of childbirth and the shamefully high maternal mortality rates. Community leaders sought help from the then Director of the University Maternity Hospital, Dr Galba Araujo, to provide training and backup to their village indigenous midwives in order to improve the quality of obstetrical services for women. In response to the rapidly growing requests for such care, an innovative program was initiated to link modern obstetrics with traditional birth customs. Similarly, there began in 1979-1980 an alternative oral rehydration program which mobilized traditional healers in diarrhoeal disease control efforts; both programs have gained international recognition and credibility (Araujo, 1983a,b; Nations, 1983; Nations *et al.*, 1984; Janowitz *et al.*, 1985; Nations and Rebhun, 1988b; Universidade Federal do Ceará, 1988).

Over the years, we have often wondered why such alternative models seem to spring forth spontaneously in Brazil. What is it about the Brazilian social and cultural context that fosters the emergence of such alternative approaches? And what about this socio-cultural configuration that supports, indeed, feeds its full florescence? The answers to these questions began to materialize slowly over the years. The most telling insights came when Nations tried to transfer Ceará's creative, alternative models to a primary care clinic in the southern United States, with little success. With each failure, it became more obvious to us that what was important was neither the technical transfer of operations nor the project design. What was the critical (and missing) factor for program success was the cultural context in which these systems were born and in which they flourish. The pivotal cultural factor in northeast Brazil for the successful implementation of these alternative health



programs rests on several basic cultural premises which we have come to appreciate as indispensable, and as uniquely Brazilian (Neves de Holanda, 1988).

In this paper we explore one such aspect of Brazilian social structure – a liminal, ambiguous, or anti-structure phase – known locally as the *jeitinho brasileiro*. After explaining this unique cultural feature of modern Brazilian society in some detail, we cite two health-related cases drawn from our fieldwork in Ceará, one behavioural, the second cognitive, in which the flexible *jeitinho* is highly visible. We argue that this ubiquitous Brazilian structural feature permits, even promotes, creative, alternative approaches to health care which circumvent many of the access barriers typically found in the formal health structure.

### Structural liminality, improvisation, and the *jeitinho brasileiro*

There are no set steps to dance the Samba, as our introductory quotation says. Some shuffle their feet, others lift them. That is to say, ambiguity and flexibility are unmistakably central characteristics of Brazilian social structure that immediately catch the eye of even the untrained, casual visitor or observer. This creative pulse beats out from every corner: in the improvised *batucada* drum beats tapped out in syncope on tables, cups, and plates with knives, spoons or what-have-you at sidewalk cafes; in the inspired, extemporaneous verses of popular *Literatura de Cordel* (string literature) recited by peasant poets, and in the eclectic blending of Catholic, Amerindian and African magico-religious traits in *Umbanda*.

Expanding on Van Gennep's (1960) seminal work entitled *Rites of Passage*, the British social anthropologist Turner (1967:1469) explored in depth the concept of structural liminality. Turner wrote:

The attributes of liminality ... are necessarily ambiguous, since this condition ... eludes or slips through the network of classifications that normally locate states and positions in cultural space. Liminal entities are neither here nor there; they are betwixt and between the positions assigned and arrayed by law, custom, convention, and ceremonial (Turner, 1969:95).

While Turner applied his notion of structural liminality mostly to initiation rites, for they best exemplify transition when an individual remains detached from any fixed point in the social structure, he also showed liminality occurring in periods of structurally simplified interaction other than initiation rites. Looking specifically at carnival and other short interludes of relatively free social interaction, he argued that the notion could be applied to public events of a broad range when, for a brief time, human beings shed structural distinctions, rules, laws and customs, and experience life in a relatively unstructured, undifferentiated community of equal individuals. Turner's selection of Brazilian carnival as an illustration of structural invisibility and ambiguity is fascinating in the context of our discussion about the *jeitinho brasileiro*. During carnival the strong class-divisions, rigidly defined sexual roles, unwavering belief in Catholicism and highly structured rural norms usually found in Brazilian culture give way to a chaotic free-for-all: rich and poor mingle, *macho* men dress as women, the pious become promiscuous and rules are forgotten. In 'Dramas, fields and metaphors', Turner further developed the idea that these antistructural liminal areas of time and space – rituals, carnivals, dramas and the like – are 'open to the play of thought, feeling, and will'. That is to say, in the deviant, in the liminal, in the ambiguous, flexibility and creativity abound from which can come discoveries and new inventions.



Over the years, while conducting field research in northeastern Brazil, we have come to appreciate more fully Turner's selection of the Brazilian carnival case study to make his point of structural ambiguity. We have come to believe that what Turner described is not restricted to carnival alone, but is, in fact, a broader, and central, cultural configuration in this tropical country. Structural ambiguity, with the cultural creativity that flows from it, spills over from carnival into music, dance, poetry, painting, all areas of life; and is institutionalized as a vital part of Brazilian social structure itself in the form of the *jeitinho brasileiro*.

### Defining the undefinable *jeitinho*

So commonplace is the reference to *jeitinho* in the day-to-day lives of Brazilians, it can slip by in daily conversation, unperceived: 'I don't have this, we'll just *dar um jeitinho*' or 'there is no such thing as no, for everything we have a *jeitinho*'. The dictionary defines *jeitinho* as: 'To find a solution or exit for a certain situation' (*Novo Dicionário Aurélio da Língua Portuguesa*, 1986, under *jeito*). The act of carrying out a *jeitinho* is popularly referred to as *dar um jeitinho*, literally, 'to give a *jeitinho*'. The idea is also communicated as a *jogo de cintura*, literally, 'a waist game' referring to the swaying hip motion of someone dancing the samba. A *jeitinho*, then, is a strategy that Brazilians – irrespective of economic class, literacy level, ethnic or racial mixture – use to resolve their problems, whether political, economic or social. Reflected in every *jeitinho* is a social snapshot of power relationships, of dominance and subordination, of inequity and injustice. Deeper analysis reveals several important repetitive elements of the *jeitinho*: first, people have a frustrated need that formal authorities, powerful elites, or institutions fail to solve; second, implicit in the concept is the presence of an obstacle – a rule, regulation, law, institution or power – which prevents solving the problem through official channels; third is the act of circumventing the blockade by transgressing an official law or social rule; which would be punishable, if the *jeitinho* were not institutionalized. However, because the transgressions are not flagrant violations of the law, as the diminutive *inho* on the end of the word *jeito* signifies, the illegality or social unacceptability of the act is 'little', too; people accept the transgression and look the other way. As one informant put it, 'When one of us, or anyone, wants to transgress the law ... they break it, only they change the name to *jeitinho brasileiro*. Even the word transgress is strong. *Jeitinho* is sweet.' The body language associated with the term mirrors its inherent flexibility and slightly illicit nature. As if orchestrated, the speaker's upper body sways from side to side, sensually side-stepping the obstacle, followed by an ever-so-quick blink of one eye to symbolically communicate the secret, illicit nature of the act occurring between two consenting parties.

According to the Brazilian anthropologist Neves de Holanda Barboas (1988) the expressions *jeitinho* and *jeitinho Brasileiro* are of recent origin, first appearing in the 1960s but gaining widespread acceptance and usage as recently as the 1980s. Conducting an extensive bibliographic search of major Brazilian books and magazines she found only seven references to the term in the 1960s and five in the 1970s; in the 1980s, 33 references appeared. A subsequent review of 44 Brazilian dictionaries revealed that the expression *dar um jeito* with the meaning of a particular form of behaviour to resolve predetermined situations appeared for the first time in 1966; the terms *jeitinho* and *jeitinho brasileiro* were only catalogued in the 1980s. Neves argues that the paucity of references before the 1950s relates to the predominant images and paradigms Brazilians used to describe themselves. Then, they were a 'people and country of the future' (*povo do país do futuro*) or the

'sleeping giant' (*gigante adormecido*), in short, a place and a people destined to be the futuristic, resource-rich, super-power of the developing world. With Brazil's move towards modernization – a rocky road at best – the past shining images have been tarnished by a sobering economic reality: soaring inflation, weighty foreign debt, and deepening poverty. Modernization has also brought the practical impact of new, industrial bureaucratic structures, of laws, of regulations, of codes and of conducts. With them have emerged new national identities and new cultural paradigms including the *jeitinho brasileiro*.

### Survival *jeitinho*: making ends meet

There are several different orders of *jeitinho*. First, there is what we call the 'survival *jeitinho*'; it is born out of a dire necessity to survive and to thrive in poverty-stricken northeastern Brazil. With a 900 per cent inflation rate per year, rampant unemployment, and a minimum salary of less than \$50 a month, Brazil's poor must employ the *jeitinho* to secure food, housing, medical care and even the minimum conditions for survival. Says 45-year-old Jandira, traditional healer and mother of 11 children, who lives in one of Fortaleza's more than 300 urban slums:

I see us work a *jeitinho* in the things that we need. For everything there is a *jeito*, no? If I wake up and don't have even a bean to fix for dinner, I work a *jeitinho*, no? I go to the private university – the parking lot of the sociology students – and I beg for money. The only thing that we don't have a *jeitinho* for is death, ugh? Death, because after death we don't do anything else. But being alive, everything is possible. It is God that gives me, He gives me everything I need; I have a lot of faith in Him.

Adds Socorro, a neighbour of Jandira's who shares the squalid *porcaria*, or 'pigsty' as the *favela* (shantytown) is called by the locals:

We have that little bit, with that little bit we exist, we increase that little, and, so, we survive. For everything, God works a *jeito*. I think this is true because nothing is difficult for God ... with calm, with patience, we win all.

There is no doubt that necessity creates. Just walking through a *favela* one is struck immediately by the examples of 'survival *jeitinhos*': left-over construction materials – scrap lumber, cardboard cartons, aluminium siding – fashioned into homes; illegal wire taps into wealthy neighbours' electric lines to siphon off a free energy source; intricate, movable toys made from scrap tin cans; an outhouse fashioned from thatched walls and adorned with a discarded General Electric refrigerator door; a flashlight crafted from a tin can and plastic funnel. The world's best glimpse at the *jeitinho* was probably provided by Pelé, of soccer fame, when he recounted his boyhood experiences in poverty. With no money to purchase a soccer ball, he scavenged for threadbare socks and torn nylons, winding them tightly into a wad, which he dribbled like a ball, perfecting his champion footwork. In health matters, the *jeitinho* is equally present among *favela* families. Examples are seen everywhere: mothers with desperately ill children swap babies in the queue with more fortunate *comadres* who manage to secure a scarce token for a doctor's appointment. A father bribes the night-watchman to scale the hospital morgue wall at dawn and to snatch the corpse of his son which cannot be released without a casket, a luxury expense at death he could ill afford in life. Or a traditional healer (*rezadeira*) hastily baptizes a dying infant at home to assure its entrance into heaven because its parents lack the cash to pay a Catholic priest to



perform the officially-consecrated ritual. Perhaps the most telling comment about the survival *jeitinho* comes from one informant who simply says: 'the biggest test of the Brazilian *jeitinho* is to see some guy feed his family of eight on a minimum salary!'

The most tragic aspect of these examples of 'survival *jeitinhos*' is that they reflect obstacles of gross human injustice and inequity that Brazil's poor must face and fight; the existence of institutional barriers for which bypasses or *jeitinhos* must be invented. While the origins of such roadblocks are economic, political and social, the poor justify their 'illegal' actions, as we see from Jandira's and Socorro's responses, by seeking a religious pardon for their 'lapse' from the ultimate authority, God. If the Benevolent Father gives a nodding approval, mothers reason, the mere laws of mortals are secondary.

### **Power *jeitinho*: taking personal advantage**

A second type of *jeitinho*, which we call the 'power *jeitinho*', goes beyond basic survival to involve taking personal advantage of every situation to better one's financial, political and social position. Here the objective is to outmanoeuvre those in power, typically governmental authorities and public service providers. Money, political favour, power and corruption often enter into play. It is a well known national pastime for upper-middle-class and wealthy Brazilians to plot ingenious schemes to avoid paying income taxes, to drive a car without paying annual registration fees, to earn money through the informal street economy without reporting earnings, to win a bid on a construction project from the municipal government without executing the building and so on. An informant, a school teacher, told the following tale of the 'power *jeitinho*':

I was conversing with a Marine ... and he didn't have seat belts, he didn't have the required stamp on his windshield, he didn't have a number of things the police require on Brazil's highways. And he told me that the police stopped him three times, and all he did is show his marine identification and the police let him pass by. There is always a *jeitinho brasileiro*. There is always *o quebra galho* (to break a stick; or make ends meet).

The most famous example of this second 'power *jeitinho*' is the *Jogo do Bicho*, a Brazilian version of lottery which is outlawed throughout the country. Through a series of *jeitinhos*, not only does the *Jogo do Bicho* exist, it thrives. The status and economic power of a *bicheiro* (one who runs the game) is equal to that of a successful business executive. News about a *bicheiro*'s social activities, parties, territorial feuds, and death makes national headlines. Although it is illegal, the government tacitly condones the *Jogo*. Politicians themselves are among those that hedge their weekly bets, and city educational institutions and even samba schools are supported by the illegal profits.

### ***Jeitinho* of daily hassles**

Finally, there is a third day-to-day *jeitinho* used to resolve the multitude of hassles encountered in daily living. Here, neither is the need of the person dire nor is the transgression illegal. In this case, instead, one violates minor social rules and etiquette to solve problems. A student needs a textbook but lacks the money to purchase it so he *da um jeitinho* and borrows one from a friend, and never returns it. A business man arrives late for an important meeting and must use a *jogo de cintura* to invent a plausible excuse for his delay to retain his professional image intact. A movie fan arrives late for the show and

instead of waiting in a long queue, he slips his friend at the box office money to purchase his ticket.

### Health care and the *jeitinho brasileiro*

Let us now explore and analyse two field experiences in northeast Brazil where the *jeitinho* has provided viable options for poor families to get needed health care services otherwise denied them. The first is the development of an alternative oral rehydration program with mobilization of traditional healers as its front-line providers. The second example involves the cognitive creation of death warning tales and visions to aid impoverished parents in coping with the otherwise unbearable loss of their infants and children.

#### 1. *Dar um jeitinho with diarrhoeal dehydration*

Diarrhoeal diseases kill more infants and children in Brazil than any other disease, as is true in most of the developing world, where some estimated three to 18 million die per year (Rohde and Northrup, 1976:339; Malahanobis, 1983:22). While the prevention of diarrhoea itself is a complex political, economic and social problem which will require the eradication of poverty, numerous studies have shown that diarrhoeal deaths are easily preventable with oral rehydration therapy (ORT), a simple process in which sick children are fed a solution of water, sugar and salt to replace the body fluids and electrolytes lost in diarrhoea and prevent deadly dehydration. Despite its simplicity, economy and efficacy, and despite a strong promotional campaign since 1984 by the Brazilian Ministry of Health's Diarrhoeal Diseases Control Program (which distributes free ORS packets), the treatment remains unavailable in much of Brazil, with tragic results. In Ceará, recent survey data revealed a distressing fact: ORT was used by only 20 per cent of rural parents for children with diarrhoea in the preceding two weeks (Victora and Barros, 1989:18). Barriers block the ORT message from trickling down to poor rural mothers, as the following cases of Sonia and Rosa show:

##### Case 1: Sonia

Sonia, a fifteen-day-old infant with profuse watery diarrhoea of three days' duration, was carried by her ten-year-old sister at dawn to the state-operated health post. Her mother was homebound, observing the customary forty-day postpartum resting-in period (*resguardo*). Despite their walk in darkness, the children arrived too late to secure a rationed appointment token; they had all been taken. Sonia was turned away empty-handed. When our team visited the clinic, we found a locked storeroom with a stockpile of government-issued ORS decomposing in the tropical heat (Nations and Rebhun, 1988b:29).

##### Case 2: Rosa

One-year-old Rosa died of diarrhoea and dehydration in early 1985. The traditional healer diagnosed 'evil eye'. Eveline, her mother, took the child to nine 'praying women' to remove the evil force before 'it finished the kid's flesh'. Although her mother fed Rosa *hortelã* (mint) tea, sang to her, and rocked her, the child weakened. A pharmacist was consulted and prescribed expensive antibiotics. To purchase these medicines, Eveline and her husband sold their only means of livelihood and transportation: their sewing machine and bicycle. They borrowed money and did odd jobs in the race to earn money for bus fare to take Rosa to the



distant hospital before she died. After being rehydrated intravenously, Rosa returned home, where she quickly became dehydrated again and perished (Nations *et al.*, 1988:337).

Poignantly, from these two cases (and others we have collected) we see the obstacles to ORT everywhere. But be they economic, political, social, cultural, or educational barriers, one thing is certain: for impoverished families they are real, frequently insurmountable, and deadly. What was needed to overcome these obstacles, given the current political structure, was a *jeitinho brasileiro*: getting ORS technology into people's hands and ending the myth of popular helplessness.

We know from Nation's anthropological research conducted in early 1980 that traditional healers are the first consulted by poor parents in Ceará when their children suffer enteric diseases (Nations, 1982:60-89; Nations *et al.*, 1984; Nations and Rebhun, 1988b:27). Because the diarrhoeal illness is usually labelled as a variety of folk maladies – evil eye, fright disease, spirit intrusion, intestinal heat, fallen fontanelle – traditional healers, not doctors, are believed to have the spiritual power to cure. Our data record that 83 per cent of rural mothers in Ceará of varying socio-economic strata believe they should first seek traditional healers if their child has diarrhoea (Nations *et al.* 1986:26), and 91.9 per cent of urban mothers having their children admitted to health facilities for intravenous rehydration had consulted a healer before admission (Nations, *et al.*, 1982). These findings and others convinced us that the *jeitinho* to deliver ORT would have to be an alternative, culturally appropriate delivery strategy instead of a hospital- or clinic-based model. It needed to be low in cost, located near poor homes, accessible by foot, and understandable to illiterate mothers, to use simple technology, to be driven by the energy and concern of villagers themselves, and advertised by word-of-mouth (not by costly mass media campaigns); and to provide backup hospital rehydration services when needed: no small order. In 1984, researchers at the University of Ceará Department of Community Medicine began their work together with 46 popular healers from the rural community of Pacatuba (population 7,000) (Nations and Rebhun, 1988b). Together, through active dialogue instead of formal meetings, a tasty ORS-tea was developed which combined traditional herbal anti-diarrhoeal teas with ORS, the salt and sugar to yield a solution with the correct balance of electrolytes; a simple bottle cap measure was adapted because of its easy availability. Seven heaping capfuls of sugar was agreed upon by scientists and healers because it met biological requirements and seven is a magical number within the traditional healing system. Healers and neighbours built simple mud and thatched room additions (christened 'curing rooms', not rehydration centres, by healers), or organized a small nook at home to store basic ORT supplies (water filters, child-size hammocks) which were adorned with images of saints and healing deities: San Francisco, Mamae Tutu, Mamae Maria etc. Healers developed with researchers teaching materials on the prevention and treatment of diarrhoeal diseases that built on their indigenous concepts of childhood illness; they designed them graphically for easy understanding by illiterate mothers. Identification of dehydration, a condition well-recognized by healers, though in folk terminology, was reinforced and biomedical indicators added. Finally, healers were taught to mix and administer the ORT-tea, which was a much simpler process than preparing many traditional remedies which require exact measurements of up to nine different ingredients. Healers integrated the ORT into their customary rituals for treating evil eye, fright disease and other ethno-medical illnesses which have diarrhoea as a symptom; all did



so in highly eclectic and creative ways, such as blessing it as holy water, offering it to the saints, or naming it 'magical white sand'. Recent impact data published by Nations *et al.*, (1988) show that Pacatuba's traditional healers have significantly increased mothers' access to and use of ORT, altered a number of detrimental health care practices, and reinforced preventive behaviours. Introducing ORT in this culturally-sensitive fashion did not alter core popular medical customs.

Our second example illustrates the cognitive *jeitinho* as it appears in the imaginary world of poor Brazilian mothers to help them cope with, perhaps, the most painful life barrier: the death of their own children and the powerlessness of the poor to save them (for a complete discussion, see Nations, 1989).

## 2. A cognitive *jeitinho* to cope with death and loss

Infant and childhood death, no matter how common, is not routine for impoverished families who suffer the loss. No one taught us this lesson better than Dona Lourdinha, a peasant woman living in painful poverty in an isolated district near the town of Guaiuba, some 45 minutes from the state capital, Fortaleza. Dona Lourdinha had lost all of her ten children and her husband to common infectious diseases: diarrhoeal dehydration, pneumonia and tuberculosis; her last remaining child and husband had died only months before the senior author's interview in early 1980. We sat in the eerie quiet of her now empty mud and thatch home; she wept as she told her story of one tragic loss after another. Numbed by disbelief, the senior author managed to ask only one question when she finished: 'Dona Lourdinha, tell me, how in the world are you here today, alive?'. Staring, now, intensely into the researcher's eyes, she replied: 'God gives a *jeitinho* for everything ... for a poor woman to survive in this world, you have to have a *jeitinho*'. The senior author did not know what she meant and was too distressed to probe any further. Not until after years and hundreds of interviews with parents of dying and dead children, have we begun to understand the nature of the death-coping *jeitinho* to which Dona Lourdinha alluded.

Popular culture in northeast Brazil, it seems, has elaborated a rich set of folk Catholic beliefs and behaviours, embodied in the concept of *conformação*, which help bereaved families cope with otherwise unbearable loss. Through imaginative projections and symbolic transformations (Nations, 1989) which we briefly describe below, grieving survivors, such as Dona Lourdinha, create new images of their dead child, which heal. The sense of cognitive coherence shattered by inexplicable death is restored by construing culturally-grounded postmortem visions, angel visitations, and warning tales.

Our research in Ceará has revealed a rich folk Catholic tradition, containing many beliefs about child death and what happens to children after they die (Nations and Rebhun, 1988a:160-170). To informants, Jesus, the Virgin, the saints, and the little angel spirits of dead children are as real as queues at the doctors' offices. Informants believe that when a child dies, his consciousness is liberated from his body in the form of a little angel with wings, which then flies to heaven. This belief is not unique to Brazil (Finerman, 1984). While the details of the *anjinho* belief vary, the themes remain constant. Mothers cannot indulge in grief, so the warning tale goes, because their tears will harm their *anjinho*. Mothers must dry their tears because the flow of liquid will wet the winding sheet or wings of the little dead angel who will be weighted down to earth and forced to wander endlessly, haunting relatives. For her child to have a peaceful afterlife, for her prayers to reach her lost one, and for the sake of an eventual reunion with her child in heaven, the mother must be resigned to death. It is only in this way that a dead child can avoid being lost forever.



However, in the event that a mother is overcome by grief and emotionally incapable of heeding this advice and burying her grief, the angel will pay a visit to her in a dream or vision. The mother sees an image of a band of chubby *anjinhas* tumbling and playing happily in heaven, then she notices one angel trailing behind, all alone, sad and drenching wet; it is hers! He cries out, 'Mama, mama, you must stop crying, I am not saved yet, why are you living crying? My death clothes are all wet with your tears! I don't have the strength to fly with the others because I am all wet!'. Shaken by the message and image of her lost child unable to complete his sinless flight to heaven where he will be released into the benevolent Father's keeping, the mother vows to her suffering child that she will obey his orders, dry her tears and *conformar* or accept his death from that moment forward. A traditional healer, Dona Chiquinha from Pacatuba, recalls what is probably a folkloric story of one woman's angel visit:

one day when she was preparing a lunch a midday, she saw a light in the room and then she saw it was an angel's belt cord. It looked like it was made of gold, it was so shiny in her eyes. And at the end she saw there came her child who had died. To the gold cord was tied a cord of ashes, a dirty cord, dripping water, dripping water. And she said, 'My child, how are you, how's it going? (*Como está, como vai?*)'. And she saw the angels all happy, singing glory to God and him so sad in the corner. And the little angel child came saying 'How am I? The others are all happy, all dressed up, all joyfully singing, and I have the greatest sadness because of the tears that you shed for me, all my death clothes and my little cord are dripping wet'. And this woman said that she paid attention and ... she grabbed the hammock with the doll (she had substituted for her bereaved child) and threw it in the underbrush. And she didn't want to be that way any more, didn't want to know that doll baby again at all (*de nada*) ... and it seems later that she had the dream that he was saved, and so she gave a thousand thanks because he was not lost (Dona Chiquinha, *rezadeira*) (Nations and Rebhun, 1988a:163).

Probing deeper into this imaginary world of grieving Brazilian mothers who suffer intolerable losses, we have, in the past few months, discovered a second critical aspect of the *anjinha jeitinho*: the symbolic transformation of these imaginary projections (Obeyesekere, 1985:144-145; Nations, 1989). For even the most emotionally hardened individual, the physical appearance of a poor, dead infant is heartbreaking: a tiny body, malnourished, dehydrated with the characteristic fallen fontanelle, sunken eyes, dry, flaky skin covered with weeping sores, and patches of hair shaved, exposing the small blue veins on the scalp's surface which are now punctured and bruised from the thrust of needles for intravenous rehydration. It lies motionless on a crude wood table for all to see, looking as if its body had aged a full lifetime in the few fleeting months it lived. In her postmortem vision, the image the mother 'sees', however, is another. She now describes her child as 'chubby and fat,' 'healthy,' often 'fair-skinned', 'blue-eyed' and with 'curly blond hair'. The image of the dead child the mother 'sees' is similar to the images of fleshy, Baroque cherubs which adorn the local cathedral as ceiling paintings and plaster statues. In other words, using her imagination she attributes to her dead child all that he was denied by society in life: food, health, money, social mobility and upper class status (indicated by the fair skin, blue eyes, and blond hair). Upon 'seeing' with her own eyes that her lost child is far better off in heaven than it was on earth, she feels comforted and is healed of her grief. For if her child is well, the mother reasons, she did the best possible for the dead child; she was a

good and loving mother. Hence, there is no reason for bereaved parents to internalize the emotional burden of guilt, blame, sadness or loss because of the child's death. There is no need for becoming trapped in a cycle of senseless self-flagellation or falling into the downward spiral of depression, self-blame and self-pity so common among grieving parents in industrialized nations (Brown and Harris, 1978:233-263; Bowlby, 1980; Kleinman and Good, 1985).

The cognitive *jeitinho* Dona Lourdinha tried to tell us about some nine years ago, we are certain today, is the imaginary projections and symbolic transformations creatively produced in mothers' minds to help them cope with the otherwise unbearable. A vivid imagination is, perhaps, the only thing in life a poor mother possesses that she, alone, controls. Her imaginary visions are, perhaps, the only *jeitinho* which can save her from lifelong mental torment and suffering she is powerless to alter in her everyday social sphere.

Both examples present the principles of the *jeitinho* as outlined above. First, there is a pressing human need that the formal social structure, with all its institutions, regulations, and laws, is unable to meet. This element is obvious in the staggering mortality of frail infants from easily preventable diarrhoeal dehydration and the unbearable loss and painful grief of distraught parents powerless in the face of death. Second, we can identify in both examples the insurmountable bureaucratic or legal barriers: rationed doctor appointments, queues of screaming, defaecating babies, the unnecessary medicalization and mystification of simple ORS administration, and the stark lack of mental health care, which block people's access to the very resource they desperately need to solve their problem. Finally, we see the diversion, or the act of circumventing the barricade by going outside the officially-approved, legally sanctioned or socially-acceptable channels. This third aspect of the *jeitinho* is illustrated by the mobilization of officially unapproved and unrecognized traditional healers as ORS providers and by impoverished mothers' imaginative projections of visions and voices which warn grieving parents to dry their tears and conform to death's call.

### A social critique of the *jeitinho*

We cannot deny that as a strategy to survive, the *jeitinho* is extraordinarily creative and gives rise to alternatives and *saidas* (exits) in precarious situations where there are no apparent solutions. The *jeitinho* sometimes offers the only option for survival among the oppressed and powerless. The *jeitinho* socially allows that which is officially not permitted. For many of Brazil's poor, manoeuvring a *jogo de cintura* (waist game) is the only hope of receiving even the basic benefits: food, health care, housing, peace-of-mind, and even life itself. But there are also at least two distressing faces to the *jeitinho*: domination and conciliation (Cauí, 1987). In a fluid context, where laws are malleable and a *jeitinho* always possible, it is those with influence, power, education, money, political connection and 'know-how' who are in the favoured position to *dar um jeitinho*. This situation of authority, of *clientelismo* (relationship between superiors and inferiors based on personal favours), of favours and of privilege is well known by working-class Brazilians when they say 'Justice only exists for the rich' or by the popular proverb, 'For friends, everything; for enemies, the law' ('*Para os amigos, tudo; para os inimigos, a lei*'). In Latin American societies, a dual class system predominates and ideology holds that the wealthy are more worthy than the poor, whites are superior to blacks (although racial classifications differ from those of North America, being more explicitly linked to class), men are stronger than women, and the



educated are more intelligent and hence more powerful than the illiterate (Wagley, 1952; Beals, 1953; Freyre, 1963a,b, 1964; Freire, 1970; Horowitz, 1970; Strickon and Greenfield, 1972; Heath, 1974; Lipset and Solari, 1976; Blanco, 1978). The poor are reprimanded and punished, while the elite and powerful go untouched. The elite use the *jeitinho* strategically to increase their sphere of power and domination; the poor man's *jeitinho*, in contrast, depends on the personal good will of a *patrão* or boss to help him survive. And, while it is true that the improvisations and detours of the *jeitinho* are 'sweeter' as one informant put it, it can also 'sugar-coat' and disguise pressing human needs which Brazilian institutions are failing miserably to meet. *Conformismo* (conformism) is the result. Society is resigned to the fact that laws are useless, innocuous, and made to be broken, and accepts this as natural, never contesting or transforming the prevailing social system. Busy plotting how to skirt the system, one fails to attack it head-on and to promote more radical (and often long overdue) social, economic and political change. If a safety valve is always invented, the pressure of the brewing steam never builds to blow the whistle. And, with time, the pot boils dry and loses steam.

Applying this critique to the alternative health care *jeitinhos* described above, we could allege that the *jeitinho brasileiro* is only a creative sell-out that appeases the poor and avoids needed fundamental transformations in social institutions; or, that its ambiguity permits manipulation and further domination by the medical elite over the life and well-being of impoverished families. From this perspective, the traditional healer ORT program in Ceará might appear to be only a second-class medicine for second-class citizens which acts to keep a tolerable minimum of children alive and thereby avoid revolt in the backlands. Some might argue that what we should be doing, instead, is to guarantee every rural child a bed in a modern paediatric hospital and access to intravenous rehydration, services that wealthy city parents purchase. Or that mothers, instead of finding peace of mind by gazing towards heaven and losing themselves in their imaginary world of angels and the afterlife, should be taught to look down at reality and revolt against the senseless loss of their babies. From these comments it would seem that the creation of the *jeitinho* serves little purpose except, perhaps, to delay or to mask needed socio-political change. In response to this critique, however, we should return to a consideration of Turner's notions about the function of liminality and of discoveries and cultural inventions which are subversions of the normative (Turner, 1969:vii). Turner argues that antistructural liminality 'represents the reflexivity of the social process, wherein society becomes at once subject and direct object; it represents also its subjunctive mood, where suppositions, desires, hypotheses, possibilities and so forth, all become legitimate' (Turner, 1969:vii). These liminal behaviours, including the *jeitinho*, rather than just being a passive mirror or mere reflection of the dominant modes, are actually dialectic and reflective. Through their creation and their existence they make critical symbolic commentaries (albeit not always radical) on the prevailing system. It is precisely in these liminal areas, Turner reminds us, that 'new models are generated, often fantastic, some of which may have sufficient power and plausibility to replace eventually the force-backed political and jural models that control the centers of a society's ongoing life' (Turner, 1969:vii). We argue, in closing, that the health care *jeitinhos* from Ceará described above are truly fantastic cultural creations, in Turner's sense of the word. These *jeitinhos* are testing new possibilities and new *saídas* (exits) some of which may have 'sufficient power and plausibility' to replace existing, inequitable medical structures in Northeast Brazil.

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Chapter 46

What makes a patient good?

Ian Maddocks

Pari Village lies at the edge of a gentle slope scooped from the folded coastal hills five kilometres south-east of Port Moresby. People from Pari were probably the first Papuans met by Captain Moresby, the first European to enter the harbour over 100 years ago, and individuals from Pari have continued to feature in milestones of white men’s history. Pari provided the first native pastors for the London Missionary Society, the first native medical assistants, the first fully qualified doctor, the first Lord Mayor of Port Moresby, the first native Chief Justice.

Up to the time of the Pacific War, the population of Pari numbered only a few hundred, but the last 40 years have seen a rapid increase, and there are now some 2,000 people there. Houses which formerly clustered between the tidemarks along the beach now spread widely inland together with new institutions such as a church, a school, a clinic, a basketball court, several stores, a picture theatre and a cricket ground.

I came to Pari in 1968 to try to discover what sicknesses village people suffered. I had worked for some years in the Port Moresby Hospital, where severe and advanced disease was the rule. Obviously there was a lot of less dramatic sickness which never came to hospital. Over the next five years, at our house or at a clinic which we established near the church, we treated everyone who came, and we kept careful records of every sickness episode and noted every attendance.

When we allow for absences from the village over those five years, there were, to use a favourite university phrase, 1,038 full-time-equivalent persons at Pari throughout the five years of the study.

Table 1  
Summary of morbidity, 1969-1974

Total person-days-at-risk	1,949,233
Total episodes of sickness	20,615
Average episodes/person/year	3.86
Average attendances/person/year	8.73

Table 1 shows their total illness experience as we saw it. Two hundred diagnostic labels were employed in coding the sicknesses we treated but four-fifths of the illness episodes fell into four major categories (Table 2). From the nature of those common diseases it is clear that children provided the greater part of the work. Many of their needs were easily met – a band-aid or a touch of gentian violet on a sore. So we also coded episodes as major, minor and trivial. Counting major and minor episodes as ‘significant’, Figure 1 shows that significant illness had an even spread through the age range, and was even a little greater among the elderly. From that coding it was also possible to derive a morbidity score for each person, a figure which gave greatest

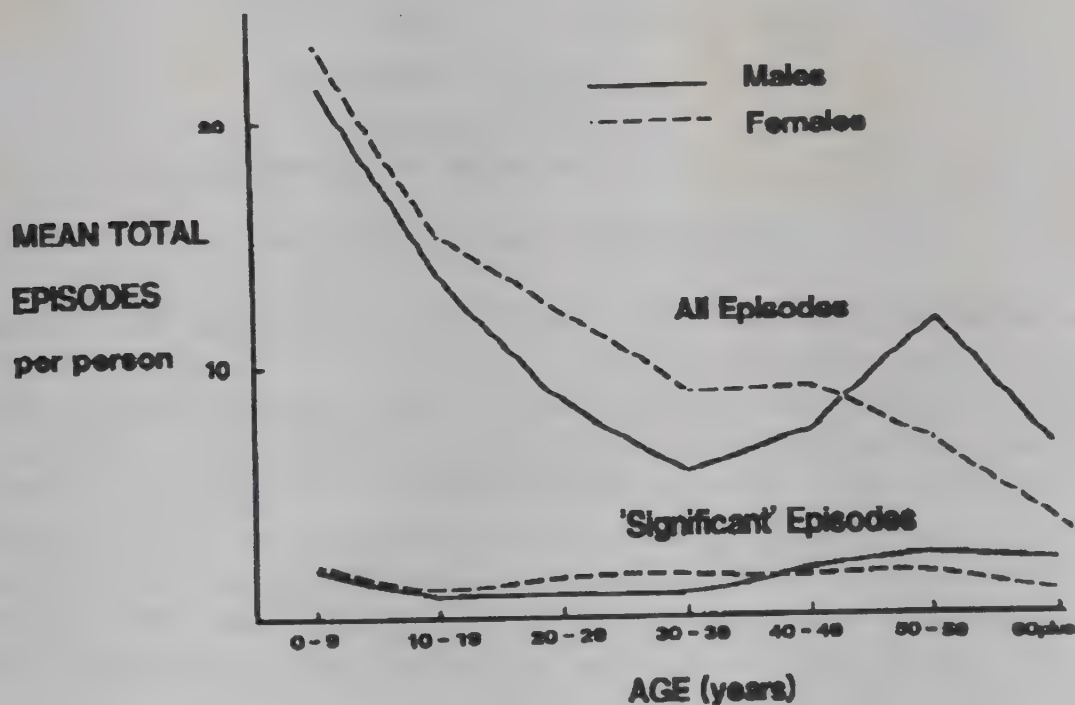


weight to major episodes, a lesser weight to minor ones and ignored the trivial : a measure of *real* illness, if you like.

**Table 2**  
**Common diseases treated**

	Percentage of all episodes
Skin trauma	27.4
Skin infections	20.1
Acute respiratory disease	20.1
Diarrhoeal disease and abdominal pain	7.1
Eye and ear infection	6.2
Total	80.9

**Figure 1**  
**Pari village 1969-1974 – age distribution of episodes of illness**

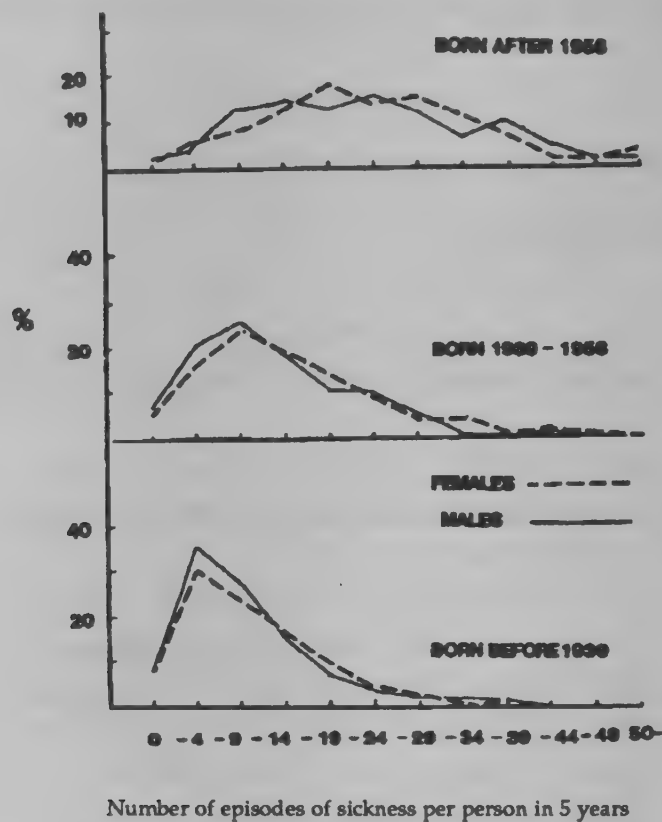


Although the intention of the study was to discover what was the true pattern of village illness, we were really measuring *compliance*, because we were wholly dependent upon the interest and co-operation of the Pari people. 'Compliance' is a word now fashionable among doctors to describe appropriate patient behaviour, though my dictionary offers the meanings of 'active obedience' or 'servile accession to another's wishes'.

The data which are available have been arranged in three ways to assess who used the service, and to what extent that use seemed appropriate.

1. Figure 2 displays the frequency distributions of episodes of sickness in three age ranges of roughly equal populations. The curve for the children is approximately 'normal', but in the older age groups most people recorded very few attendances, and there is a 'tail'

Figure 2  
Pari village 1969-1974 – frequency distribution of episodes of sickness in three age groups



of a few individuals who presented many times. This suggests that the clinic was used quite freely for children, but selectively by adults.

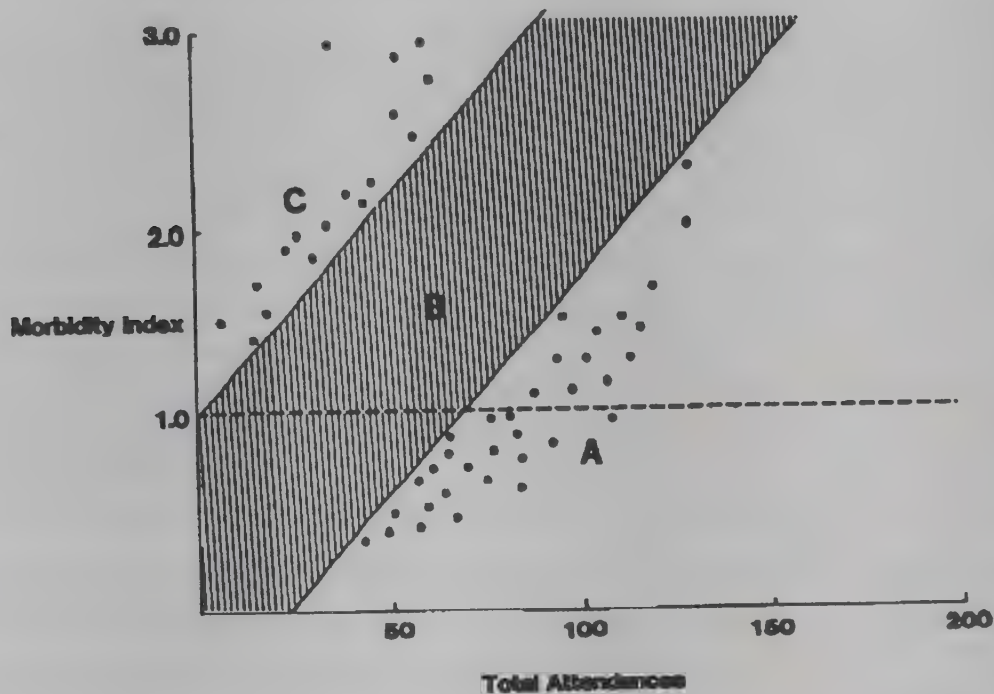
2 As a further attempt to explore the question of who came and why, I have compared, for each person, the morbidity index (that measure of 'real' illness) with the sum of attendances over five years. In Figure 3, three quarters of the population falls within a broad swathe of direct relationship between attendance and morbidity (B). On the whole, those who came often had a greater amount of non-trivial illness, but one quarter fell outside those arbitrary limits, and of these, about two-thirds came more often than their morbidity index would suggest was necessary (A) while one-third came less often than their relatively high index might suggest was appropriate (C).

Looking in more detail at who they were, these individuals who fell outside the conforming path, the smaller 'sicker' group (C) were largely people who were socially somewhat distant from us, people 'from the other end of the village' as we used to say, families with whom we had few personal ties. They used us only when they were distressed, and so each time they came they recorded a significant morbidity. The bigger group (A) of keen attenders were mainly families (and particularly the children of those families) who used us cheerfully and often for anything which could be remotely interpreted as a sickness – a small sore on the foot, a runny nose. Often they were children of adults who had come to know us through their own sickness, or who lived near to us. At first shepherded in by their parents, and later brought by older siblings, quite small children eventually toddled in on their own, gravely holding up their minute abrasions for inspection.



Figure 3

Pari village 1969-1974 – the relationship between estimate of morbidity (morbidity index) and number of attendances to village clinic



3. The examination in greater detail of just who were the 'familiar faces' can be attempted by selecting from within these age ranges three more limited age ranges: those born 1910-1925, 1948-1953, and 1970-1971. In each of these groups there are some ten males and ten females who came often, and an equal number who came seldom.

Three factors appeared to encourage attendance:

One was *chronic disease*. The group of older males who came often included cases of severe obstructive airways disease, gout, gastric ulcer, depression, and two who underwent prostatectomy. But this element of chronic disease did not appear to be important in other groups.

Another factor was *proximity*. Our best customers lived close on either side, within three or four houses.

A third factor we could call *dependency*, using another favourite item of medical jargon. There were numbers of people who seemed to enjoy their relationship with the clinic staff, and who used visits for support in various ways. Some felt isolated, such as immigrant wives, or single mothers who felt a heavy personal responsibility in the care of their children, and who brought them often with minor symptoms. Or Dairi, born hemiplegic, unmarried and forced to adopt a 'jester' role; and Bainare, an elderly immigrant widower, dependent upon the goodwill of others, and the butt of many jokes (*Bai* is a word for fish, and he might be called 'fish-head'). Some frequent attenders seemed to bring to the clinic tensions which they found difficult to ventilate within the family: young women with love affairs involving boys outside the village; young men frustrated by their inability to find the jobs they hoped for; wives escaping from drunken husbands. Sometimes wives and husbands came together as a kind of social outing. Occasionally there was a linking of generations: Gomara, who came often with headaches and other

minor symptoms; her daughter Baeau, who made many visits during the time of her love affair with a boy in the town; and Baeau’s daughter from the liaison – delicate, fatherless, and brought often for treatment by her anxious mother and grandmother.

Child growth

Another part of the Pari study concerned infant and child growth. During the first three years we were in Pari, 167 babies were born and each one was carefully measured on dates as close as possible to that infant’s age of six weeks, three, six, nine, 12 and 18 months, and two years. Throughout the tropical world the picture of child growth is much the same. For the first few months of life growth and development are rapid, faster if anything than for the average European child, but later growth and development milestones are slower. This is usually related to early effective breastfeeding, followed by a time of limited availability of suitable weaning foods and pressure on the mother to resume gardening or food gathering, which takes her more and more away from the child. Also, as the protection of maternal antibodies fades, the child is increasingly subject to the intrusion of infectious diseases.

Before the Pacific War, approximately half of the babies born in Pari failed to reach adult life (Table 3). Old people recognize a marked change in more recent times; they point to the hundreds of small children who romp on the beach in the evening, and they attribute their survival to medical care. Many other factors – cash incomes, education, availability of transport, or malaria control – may be more important in determining infant survival, but there is no doubt that the health authorities in Papua New Guinea see infant welfare programs as highly important, providing immunizations, monitoring of growth and feeding supplementation when indicated. We conducted a regular infant clinic for this purpose in Pari, and it was well attended. The average growth of Pari children was high for Papua New Guinea, reflecting the favoured status of the village with its easy access to both imported and traditional foods, the stability of its family life compared to depopulated rural villages, and the availability of quality medical care.

Table 3  
Pari village – survival to adult life

Born before 1945		Born 1945 and after	
Died without issue	Survived	Died without issue	Survived
129	119	111	867
Child Mortality 52%		Child Mortality 11.2%	

But as with the question of attendances, a description of the average experience of the group immediately raises questions about individuals: what made some children grow better than others? In what ways did the life experiences of those children whom we saw to be developing satisfactorily differ from the life experiences of those who were delayed or slow in their growth? The factors which are thought to be of importance are adequacy of breastmilk supply, availability of appropriate supplementary foods, psychological security and freedom from illness. Which families were most successful in providing these?



**Table 4**  
**Growth records of 167 infants of Pari village**

	In top 20th percentile at both 6 and 18 months	In bottom 20th percentile at both 6 and 18 months
Number	13	10
Males	7	4
Mean birth order	3.8	3.3
Mean maternal age	22.4	23.3
Mean sickness episodes	23.2	29.5
Mean sickness attendances	49.0	67.7
Mean morbidity score	0.926	1.793
Feeding problem (number)	0	7
Stable and supportive family	12	4
Income/education superior	10	4

In the analysis of growth records, there were only 13 children who were in the top 20th percentile at both six months and 18 months of age, and only ten who were in the bottom 20th percentile at both these ages. Table 4 indicates ways in which they differed.

Seven of the ten who grew slowly had significant feeding problems with failure of breastmilk and the hazards of artificial feeding. None of the superior group incurred this problem. Cessation of breastfeeding was associated with a further pregnancy in only one instance. Illness on the part of the mother was not a factor, but there was certainly more illness occurring among the poor growth group. It did not appear to go untreated, since they came often for opinion at the clinic. All children whose growth was superior came from 'successful households' with regular incomes and relatively high education represented among the adults. Three of the good growth group were children of three sisters, two were children of two brothers, and two were the children of a mother and her daughter, both infants born on the one day. This suggests that the availability of surrogate mothers to assist in breastfeeding may have been important. In the poorly growing group there were no such associations. These households had few competent grandmothers and their families were poorer and less well educated.

## Discussion

The suggestion that subjective appreciations of family competency ('successful households') provide the best means of distinguishing these two groups of children should give us pause. Are we merely bringing our own view of the universe to bear upon this situation and forcing it into a meaning with which we can be comfortable? In earlier times a study like this one would have seemed very odd to Pari people. They accepted that many newborn and small infants died. They did not usually name a child until the first week of life was safely accomplished. They saw the child as integral with the family, and the well-being of the child, like that of any other member of the family, was an indicator of the good standing of the family. If the child became ill or failed to thrive it would be because of the malevolence of some outsider or the wrong-doing of some family member. It might indicate, for example, that the father had resumed sexual relations with his wife too soon, and the semen was poisoning the breastmilk. These understandings persist. When little

Karoho developed kwashiorkor, it was attributed to his mother's suspected dalliance with another man.

Understandings also change, however, and when we left Pari in 1974, the younger mothers were beginning to accept the weekly baby clinic as one of the rituals which keep their world in good order. Their understanding of what happened was simplistic. They accepted that immunization injections and placebo mixtures made their babies strong. They probably attached little importance to the regular weighing of their babies but they accepted it as a ritual of great importance to the staff. Under our supervision, mothers came to the weekly clinic more for the good fellowship and socialization – the cups of tea and the ribald repartee which came to form part of that morning – than for the health of their babies.

Much the same could be said of clinic attendances. From the point of view of the doctor-dominated world of medicine as applies in Australia, it may seem unexceptional to label the three groups in Figure 3 (A, B and C) as 'dependent', 'compliant' or 'resistant'. But in Pari our dominance was more relative, because there survived in the village an indigenous, complete and quite different understanding of sickness as something which followed upon threats to good relationships or failure to observe natural laws. That understanding provided control and appropriate response to sickness situations through its own rituals. The rituals which we could offer – of penicillin, bandages, mixtures and plasters – were additional. They were useful no doubt, good to have ready and nearby, but they were not the only or even the most important resource. Some families and individuals were not sure of their control in more traditional terms and they used our foreign rituals more readily; others lived close to us and came to know us, and in time they came to fit us without difficulty into their world as part of their personal preferred rituals. One aspect of my presence at Pari which seemed to be universally appreciated was my position at the hospital, which provided a friend and ombudsman at that dangerous and threatening place, able to bring understanding and some measure of control to its fearful mysteries.

But in the village we were a curiosity, a mixture of friend and enemy. Our house was a museum of unfamiliar apparatus and cargo, a place of unusual customs; we ourselves were exhibits in a little zoo which was theirs. Some people like museums and zoos more than others. Some go only once to check out the place; others go often to keep a watch on their favourite pets. And that, it seems, is how it was in Pari.



## Chapter 47

# Social context of health behaviour in Kerala

P.N. Sushama

Kerala State has experienced faster mortality decline than any other Indian state and has often been described as the one which has achieved 'Good Health at Low Cost' (Halstead *et al.*, 1985:5). All health indicators, the crude death rate, infant mortality rate and expectation of life at birth, show Kerala as having achieved a better health status than that of many Indian states and the levels are near those achieved by many developed countries. The crude death rate for rural areas declined from 9.3 per thousand population in 1970-1972 to 6.8 in 1980-1982, while during the same period, the decline in urban areas was from 8.3 to 6.3 per thousand (Government of India, 1984). In rural areas of Kerala the infant mortality rate declined from 49 per thousand live births in 1977 (Government of India, 1981) to 32 in 1985 (Government of India, 1987) and for the same period for urban areas, the decline was from 37 to 30 per thousand live births. The expectation of life at birth for the period 1976-1980 was 65.5 years (both sexes combined) for rural areas and 65.7 for urban areas. Thus a very significant factor in Kerala's mortality decline, and one that helps explain overall low mortality, is the narrowing gap between the rural and urban areas.

The achievement of better health in Kerala than in other states has been mainly attributed to policies such as the wider and more equitable distribution of health facilities, and utilization of the available facilities, a better transport system (Panikar, 1979; Krishnan, 1985), greater social development and favourable environmental and hygienic conditions (Nag, 1983:895). The factors identified for better health are mainly health intervention programs based on Western ideas of health and hygiene and greater utilization of these facilities by the people. The findings are based on secondary data obtained from various sources such as from health institutions and surveys and very little attention has been given to the actual behaviour of the people in caring for themselves and using health services. Although health interventions are important, the utilization of the facilities to a great extent depends on the beliefs and practices related to health and cure in a society. The introduction of a Western medical system creates a conflict because it interacts with the traditional beliefs on health and cure and the new system may either displace the old system or coexist in the society, depending on the cultural and social values regarding good health, the meaning of sickness and the mechanism of treatment. So the health status of a community is better explained by understanding cultural and social values.

In view of this, this paper looks at how a community perceives sickness and the mechanisms of treatment. Emphasis is given to beliefs associated with the treatment of the sick and the type of medical system used in treating the sick which has a far-reaching impact on health.

The findings of this paper are based on data collected in a Kerala village for ten months during 1984-1985. Both quantitative and qualitative approaches were used, although the findings of this study are largely based on in-depth interviews and observations. The focus is mainly on curative measures undertaken by the people although preventive measures and nutritional levels are also important factors in mortality decline.

It should be noted that the term 'sickness' is not medically defined here but used as the community perceives it. Often the villagers reported the symptoms rather than the disease. Since the objective of the paper is to understand how a community perceives sickness and the mechanisms of treatment, current sicknesses were detected and recorded and the subsequent treatment of each sickness was observed and noted. Before any attempt is made to present the findings a brief description of the study village is necessary.

## The village

The village, Palankara, is situated approximately 25 kilometres south-east of Ernakulam, the district headquarters town. At the time of the study, the population of the village was 2,378, comprising 450 households. Of the total population, the proportion of Hindus was 55.2 per cent, Christians 43.4 per cent and Muslims 1.4 per cent. A well organized transport system in the state has helped the villagers to keep close contact with the nearest town, Ernakulam. Although there is no government road transport service to this village, in 1974, for the first time, a private bus service to Ernakulam was started. Two more private buses were introduced, one in 1982 and another in 1983, providing transport between the village and the twin cities of Cochin and Ernakulam. Before the introduction of the buses in 1974, people had to walk about ten kilometres to find any type of transport. People often told me how these three buses had helped them to reach Ernakulam for health services, employment and entertainment. Apart from these buses, auto-rickshaws (motorized three-wheelers) and taxis are available, but they are relatively expensive and are used only in emergencies—which are usually health emergencies.

The villagers are also well informed about current events by newspapers which are delivered every day. Twenty per cent of the households subscribe to newspapers every day, and even those who do not buy newspapers have access to them in the tea shops and other common places of meeting. There are more newspapers published in the vernacular language every day in Kerala than in any other Indian state, and men and women generally read at least one newspaper every day. By the end of 1983, 112 daily newspapers were published in the vernacular language, Malayalam, in the state (Government of India, 1985). This is a reflection of the high literacy levels in the state, which is also true of the village. It is clear that the widespread reading of newspapers has contributed to imparting new types of knowledge to the people and to generating greater political awareness.

The villagers depend mainly on the local fair-price shop for their food grains. Fair-price shops are those where once a week food grains are sold at a subsidized price by the government. The items commonly available in these shops are rice, wheat, sugar, cooking oil and kerosene. This has enabled many poor people to buy basic necessities at a reduced price. It has been documented that the public distribution system of food grains has been unusually effective in the state and has largely solved the problem of food scarcities (Centre for Development Studies, 1977; George, 1979). Though the nearest post office is five kilometres away, mail is delivered every day by a postman who visits the village. The village also has a government-aided primary school. Drinking water is procured from wells and the village is electrified with 21 per cent of the houses connected. There are three Hindu temples (one of which is exclusively used by the Harijans) and two churches.

At the time of the study, the village registered a crude birth rate of 18.2 per thousand population and a crude death rate of 4.5 per thousand population. The total fertility rate at the time of the study was estimated to be 2.0 and total marital fertility was 2.9. The decline in fertility rate was shown by birth histories to have been rapid since the 1970s (Sushama, 1989).



The infant mortality rate declined from 102 per thousand live births in 1950-1954 to 74 in 1960-1964, to 68 for the period 1970-1974 and to 20 per thousand live births during 1980-1984. Thus, the village experienced rapid demographic transition in the 15 years after 1970.

There have been a number of economic changes which have had a far-reaching impact on the lives of the people. The most notable of these changes have been the introduction of land reforms and the implementation of a minimum wage and pensions for agricultural labourers which have in turn led to changes in the occupational structure. As a result of the fragmentation of land, through both population growth and land reforms, the land holdings have become very small and the opportunities on the land are diminishing so that people are increasingly seeking work outside agriculture.

The village has been experiencing changes due to social reform movements in the state, such as expanded education programs and improvements in health services. According to the census, the literacy rate in the village increased from 42.5 per cent in 1961 to 51.5 per cent in 1971 (this includes the population aged 0-5). For the same period male literacy levels increased from 51.7 per cent to 56.8 per cent and female literacy levels increased from 32.9 per cent to 46 per cent. At the time of the study, the proportion of population who were literate was 78 per cent, with 80 per cent of males and 75 per cent females literate. The level of literacy improved in the village over the decades partly because of an increasing demand for education by the lower castes (particularly Izhavas) and partly through such policies of the government as free primary education and financial support to village schools from the first half of this century. Explanations given for the development of a high level of literacy in the state include high rainfall and consequent growing of cash crops (Gough, 1968:153), overseas trade, government educational policies, the commercialization of the economy (Nair, 1983:23; Tharakan, 1984:1913) and the position of women combined with the government educational policies (Caldwell, 1986:208; Jeffrey, 1987).

Improvement in the literacy levels has created a political awareness among people, and an emphasis on female education and employment has improved the status of women; this has clearly reduced the level of fatalism towards sickness which has resulted in turn in low mortality levels.

The village has experienced certain important changes especially with regard to the Hindu caste system. Discrimination against lower castes in using public facilities has gone. This came about mainly through social reform movements by the Izhavas, under the leadership of Sri Narayan Guru at the turn of the century. To some extent, egalitarian ideas are spreading in the village. The village has witnessed a shift from a matrilineal system to a patrilineal system and the family structure among the Nayars has changed from extended families to nuclear families. Attitudes towards marriage have also changed and this has resulted in increased age at marriage for males as well as females.

The result of these changes has been a weakening of caste rigidity and improvement in literacy levels. The equal emphasis on education for girls and boys coupled with a tradition of matrilineality and a higher proportion of Christian population, mean that the women enjoy a better status than elsewhere in India. Undoubtedly, these socio-economic changes have had an impact on the health behaviour of the people in the village.

### **The availability of health services in the village**

Traditionally, the villagers used the Ayurvedic system, home-made herbal medicines and magico-religious practices to cure the sick. The Ayurvedic system is the traditional medical

system used in India for more than 3000 years and according to this system, sickness is caused by the imbalance in bodily humours. Extracts of plants are used to treat the sick and this type of treatment is widespread in the state. Government has given some support to this system and both Western and Ayurvedic systems coexist in the state. By 1965, Ernakulam district had seven Ayurvedic hospitals and 24 dispensaries maintained by the Department of Indigenous Medicine (*Gazetteer*, 1965:769).

Up until 1974, the village had a private Ayurvedic clinic but then the doctor moved his clinic to another place for personal reasons. Even when the Ayurvedic clinic existed in the village, the villagers sought modern medicine from the government health clinic seven kilometres away, and also from other private clinics in neighbouring villages as well as major hospitals in Ernakulam.

There is an auxiliary-nurse-midwife (ANM) centre in the neighbouring village a kilometre away. The male and female health workers attached to this centre are expected to visit the village once a week to provide health and family planning services but do not do so on a regular basis. During my fieldwork I gathered that villagers were displeased with their irregular visits and I had an opportunity to watch their displeasure. The day I visited the subcentre<sup>1</sup> in the neighbouring village an old man in his sixties (who was an informal leader) came to see the ANM. He was complaining about her irregular visits and said that if she did not live in the village, he would inform the higher authorities. He made it clear to her that villagers did not want her if she continued as in the past; she was not of any help to the community. As the villagers gave the land to build the subcentre, the villagers had every right to demand her services. The man told me that his daughter had developed labour pains the previous night and they could not take her to the hospital whereas, if the ANM had lived in the village, she could have helped his daughter. The ANM was very much embarrassed because I was present when the man was complaining. After the man left the place the ANM told me of her problems in carrying out her duties properly. But the point to be noted here is that people demand services, particularly from those who are paid by the government. Such incidents have been noted elsewhere in the state (Mencher, 1980:1782). This shows that people are aware of these services partly through higher literacy levels and partly through radical and egalitarian political movements in the state as a whole which teach them their rights. Such demands are made not only for health, but also in the fields of education and transport.

At the time of the study there were three private health clinics in the village, one established in 1983, and the other two in 1985; two are Ayurvedic and one homoeopathic. Even though the staff are primarily trained in Ayurveda and homoeopathy, they also dispense modern medicines, so, ever since these clinics were established, the villagers have not needed to go far for health services. Nevertheless, the existence of these clinics has not prevented the villagers from using health services in Ernakulam and nearby towns. Distance has not been a deterrent to seeking medical services. If the service was not available in the village they would not hesitate to travel to wherever it was available. This has been made possible by a well organized transport system. However, 20 per cent of the

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<sup>1</sup> Each ANM is provided with a building, a part of which is used as clinic and the other part as residence for the ANM. The rationale is that if the ANM lives in the village it enables her to provide maternal and child health care to the villagers. Generally, the land is donated by the villagers to build subcentres.



families preferred to visit the same physicians for all complaints because they believed that in this way the physicians would be familiar with their constitutions and they would be in a better position to treat the sick.

To depend on fate to recover from ill-health was very common in the past. This was more so among the lower castes because they could not visit Ayurvedic clinics often owned by upper castes. During the interview, Kali, an 80-year-old Pulaya (Untouchable) woman told me that only five children out of her eleven survived. Whenever her children were sick she used herbs and magico-religious treatment. Because she was an Untouchable she could not go to a doctor and had to depend on fate. She believed that children would survive if they had *ayassa* or were destined to live longer (the belief is that the god of death decides each person's life span). The condition of Untouchable castes used to be very bad because of strict caste rigidity and most of them depended on herbs and magico-religious practices, and fate, to cure the sick. However, nowadays there is no discrimination in the use of health services according to caste or social class and this has led to a very significant change in the use of health services in the village.

### Types of treatment used

Of the 450 households interviewed, 63 per cent reported that there was at least one person sick during the reference period covering the six months prior to the study. However, the reference period posed problems because of memory lapse. People's memory of sickness differed depending on its severity, and the problems were in recollecting details of the treatment. Since the purpose was to understand the culturally and socially determined values regarding sickness and its treatment, the findings of this paper are based only on current sickness and its treatment. During the study period, 265 households (1,352 persons) were interviewed to understand the treatment of the sick.

As mentioned earlier the term sickness was not medically defined but used according to the community's perception. Often they reported symptoms and not the disease and there was also a tendency to report only those sicknesses for which they had sought treatment at an institution or clinic, but a detailed unstructured interview helped in understanding the situation better.

It was observed that there was variation in reporting sickness according to age and sex. For instance, when respondents had to report on children's health even such ailments as colds and coughs were reported, mainly because parents are now very concerned about the simple illness of the children and this concern is largely a product of the recent low fertility levels in the village. Since the proportion of couples who employed sterilization to limit the number of children was 67 per cent, they did not like to risk their children's lives and placed great emphasis on the health of their children. As far as adults were concerned, simple ailments were often ignored. Among adults, women reported more sickness than men mainly because their sicknesses were so often related to their reproductive system.

The commonly reported sicknesses were colds, coughs, fever and headaches, rheumatic pains, skin diseases, asthma, bronchitis, chicken pox and injuries. Symptoms related to minor respiratory ailments were common and it was confirmed by the doctor in the village that respiratory illnesses are commoner than other ailments. There were some chronic cases of mental disorders which were being treated in a psychiatric institution.

Generally, people used Western medicines to cure illnesses. Of the persons reported sick, 56 per cent used Western medicine, 18 per cent used Ayurveda and 16 per cent used homoeopathic medicines as the first step to cure their sickness. The rest used magico-

religious practices (1 per cent) and self-medication (9 per cent) as the first step to cure illness. Thus people usually visit trained persons and do not depend only on magico-religious practices to cure the illness.

Table 1 shows that people preferred certain types of treatment for certain types of illness. For skin diseases, rheumatism, chronic asthma, chronic gastric complaints and *ushnam* (excess heat) the most sought-after treatment was Ayurvedic. This is mainly because of the belief that Ayurvedic medicines cure the root of the sickness, also that some Ayurvedic doctors have healing powers. The sicknesses related to the respiratory and circulatory systems are mostly treated by Western medicines. This behaviour explains to some extent the decline in mortality because people use Western medicine to treat those illnesses which can be fatal and use self-medication for those which are not life-threatening.

The use of homoeopathic medicine has become popular recently though usually only as a first step in treating children. Two main reasons mentioned by the villagers for using this system for children are that the pills are sweet and small which makes them easier to give to the children and that they are less expensive than modern and Ayurvedic medicines. Of the three systems of medicine the Ayurvedic system is the most expensive.

**Table 1**  
**Type of medical use by illness (per cent distribution, N=1352)**

	No.	Western	Homoeo- pathy	Ayurvedic	Self- medication		Magico- religious
					Home	Western	
Respiratory (minor)	508	48.0	27.6	5.2	12.0	7.2	0.0
Respiratory (major)	94	54.5	27.3	18.2	0.0	0.0	0.0
Digestive disorders	310	75.0	11.1	2.8	7.0	4.1	0.0
Circulatory	113	64.6	7.0	28.4	0.0	0.0	0.0
Rheumatic	78	11.1	0.0	66.7	17.1	5.1	0.0
Skin diseases	135	18.7	12.5	56.2	10.5	2.1	0.0
Injuries	60	32.6	10.3	14.3	30.5	12.3	0.0
Reproductive-related	39	62.6	0.0	27.3	6.3	0.0	3.8
Ill-defined	15	10.2	4.7	33.8	19.3	0.0	41.4

Source: Health Survey, Palankara, 1985

There are two types of self-medication: where people use some herbs grown in their back yard or medicines brought from a chemist. Self-medication was used mainly by adults as a first step for simple ailments such as colds, coughs and headaches. Children were treated at home under special circumstances. Parents used self-medication if they could not visit a doctor late at night when the illness was first noticed or could not find the doctor in the clinic, but the children were always taken to the clinic the next day. For instance, when Radha noticed in the night that her eight-months-old daughter had a high temperature she used leaves of a herb called *panikurukka* as a temporary remedy. The child was taken to the doctor the next day. The use of home-made herbal treatment was common among adults. The most commonly used treatment was the *kashayam*, a potion made of black pepper, cumin and dry ginger. Often people kept some analgesics at home and these were used as a temporary remedy for headaches and body-aches. As most of the herbs used as medicine



were available in the village, the use of herbs for self-medication was more common than the medicines bought from the chemists.

The use of magico-religious treatment as a first and only step to cure sickness was rare; most of the time it accompanied other forms of treatment, particularly when the illness was severe. The common forms of magico-religious practices were to tie a *yantra* on the patient or make offerings in cash or kind to a temple or church. Sometimes the offerings were votive images made of thin metal sheets which resembled human shapes. For instance, if a person suffers from rheumatic pain, a thin metal sheet in the shape of an arm or leg is offered to the God. Generally the metal is tin but, depending on the economic status of the family, it can be gold or silver. The votive offerings made of tin are usually available at temples and churches and can be bought at low cost. Generally, these are special temples and churches and people believe that the gods in these places are powerful with regard to curing illness.

Magico-religious treatments as the first step were used in some cases of ill-defined illness. For instance, one day Kuttappan and Kartyani's three-year-old son started crying continuously and they did not find any symptoms of fever, cold or cough or any injuries. They thought that the child was crying because he was frightened by some evil eye or spirits. So, they offered some cash and some oil to light a lamp in the temple of Mariamma the village goddess, to ward off evil. Two days later the child was normal.

On the whole it was observed that people used Western medicines for sicknesses which were life-threatening and self-medication for simple ailments.

### **Mechanism of treatment**

Promptness in seeking proper medical service to a greater extent can influence the mortality levels as it intervenes in time to stop a person from dying. It was found that the people sought health services promptly once they noticed sickness in the family.

Ever since the three clinics were established in the village, people have visited them as a first step towards treatment. For instance, when Sarojini's daughter had rashes on her skin, she was taken to the homoeopathic clinic in the village; as there was no sign of improvement even after two days, she was then taken to the Ayurvedic clinic. In many cases when the symptoms continued for more than two days, after seeking a cure in the village, the patients were usually taken to another doctor who was considered better than the one in the village. Since the belief is that the doctors in fairly big or major hospitals are better, villagers visit such hospitals in nearby towns or in Ernakulam.

People used more than one type of treatment when they felt that the particular treatment was not yielding any results. For instance, Ayyappan, an agricultural labourer, was suffering from stomach pains and he went to the government hospital in Ernakulam because he did not have money to pay the doctor. Even after treatment for two months, there was no improvement, so he went to an Ayurvedic clinic and was still under treatment at the time of interview. His daughter was suffering from eczema and was taken to the government hospital in Ernakulam but a month later it recurred, so she was taken to a government Ayurvedic clinic in the belief that Ayurveda cures the root of the sickness, and she was cured. Similarly, when Sajini's two-year-old daughter suffered from diarrhoea, she took her to the homoeopathic clinic in the village, but, as there was no improvement, she then took the child to a government hospital in Ernakulam.

Factors causing people to switch from one system to another were partly the concern over their health and partly certain beliefs associated with each type of system. There is

belief that people have different *prakurti* or body constitutions and, depending on their *prakurti*, certain medicines are effective. So, whenever homoeopathic medicines did not show any improvement, people believed that the medicine did not suit the person's *prakurti*. Often, instead of questioning the effectiveness of the system, they explained the failure in terms of a person's bodily constitution. They also believed that homoeopathy is for simple illnesses and stronger medication is needed if the illness is serious and in this case they switched over to Western or Ayurvedic treatment. Similarly, health services in government hospitals (which are expected to be free) are not considered satisfactory. The reasons for dissatisfaction are mainly that people have to wait long hours in government clinics, the frequent need to buy medicines from a chemist due to the non-availability of medicines in the government hospitals and clinics, and the fact that better services are not ensured even when cash payment is made. They believe that private physicians are better as they provide greater care for the patients. There is a tendency to visit private physicians whenever people have the money.

People also changed the treatment from one doctor to another even if they used the same system of medicine. Rajan's wife started coughing and so she went to the nearby government allopathic clinic. As the cough continued for more than 15 days, they went to another private allopathic doctor in a nearby town on the recommendation of a friend. There seemed to be no improvement even after a week and the private doctor suggested some tests which were expensive. So they decided to go to a government hospital and it was diagnosed that Rajan's wife was suffering from tuberculosis; she was treated in the government hospital in Ernakulam.

Such beliefs influence the choice of type of treatment. It was very common that people switched from one type of treatment to another until they were cured. They responded very quickly to sickness and took the necessary steps to treat the sick.

An important change is that the old people who used Ayurvedic treatment in the past now do not hesitate to use Western treatment for sickness except rheumatism. The main reason is that modern medicines provide a quick cure, and the belief is that injections cure faster than pills. The Ayurvedic system involves a strict diet, whereas Western medical treatments do not. However, people self-impose these restrictions because they believe that the Western medicines generate excess heat in the body and people eat only those foods which are supposed to keep the body cool (this does not refer to the temperature of the food).

### **Decision-makers in treating the sick**

In the study village it was observed that when they were both there, husbands and wives made decisions jointly regarding where to go for the treatment or what type of medicines to use; but a striking feature of decision making was that women were free to decide about treating the children in the absence of their husbands. For instance, Shanta noticed that her three-year-old son had a fever while her husband was away at work, so she took the child to the homoeopathic clinic in the village without waiting for him to return from work. As she did not have the money to pay the doctor she borrowed from a neighbour. Women waited for their husbands only when the sickness was serious and if they had to take the child to a specialist in a nearby town. It was very common for women to take the initiative in taking the children to a clinic as soon as they noticed any signs of sickness. It was also observed that women went to the subcentre to find out about the immunization program even before the ANM from the subcentre visited them. If immunization was not available in the subcentre



they went to places where it was available: normally they went to the government hospital in Ernakulam. The freedom for women to decide about children's health is significant because mothers were usually the first to notice the sickness of the children and they took immediate action to treat the illnesses.

The women could make decisions because Kerala women enjoy higher status than women elsewhere in India. Cultural factors contributed to the higher level of decision making power among women in the village. They were not restricted to the four walls of the house like women in other states in India (particularly North India). This kind of freedom is enjoyed by the women because of the tradition of matriliney and the spread of Christianity. Women were used to making decisions about their children when matriliney existed in the state. They made most decisions regarding the children as the fathers had very little responsibility towards them and they did not live under the same roof. Mateer observed of women in Kerala,

Unlike their sisters in North India, the restraints imposed on them are few. They are not restricted to their own apartments, and the mother of each household occupies a dignified and honourable position. In the families of the Nayers she governs the whole house ... Her duties are not light, for, besides buying, storing up and giving out food for many mouths, she regulates the lives of the children, decides what schools they shall attend, how they shall dress, and what medicines they shall take when they are ill (Mateer, 1883:209-210).

This illustrates the extent to which the women enjoyed freedom and status in Kerala even a hundred years ago. Women had great freedom of movement and decision-making power even in the past, with the exception of the women in the Nambuthiri caste. Many castes who followed the Nayers showed similar behaviour. Apart from matriliney, Christianity also contributed to improving the status of the women.

The freedom of movement and the better status of women have contributed to higher literacy levels over the decades. At the time of the study the proportion of women who were literate in age group 20-49 was 83 per cent. The higher level of literacy among this age group has been significant because these women belong to the reproductive age group and make decisions regarding their children. It has been well established that the chances of child survival increase with higher levels of female literacy (Caldwell and McDonald, 1981). The reason for this is that literate women are more likely to know where the services are available and what type of medicines are effective and are in a better position to convince their immediate family members. Since community-level female literacy is high, the illiterate women are likely to observe literate women in the neighbourhood and to be influenced by them.

Now, with education and employment, women's status has further improved. The freedom of movement has also allowed them to visit clinics without depending on male members of the family. When a child is sick a woman need not wait for her husband to return from work or ask the permission of in-laws to visit a doctor.

There were no significant differences in the pattern of treating the sick according to socio-economic status. People were concerned about health and it was no longer a matter of fate, with people employing different types of treatment to recover from sickness. Even a labourer from a lower caste does not hesitate to visit doctors for treatment. For instance, when Bava's son suffered from diarrhoea, he was taken to the general hospital in Ernakulam on the same day. It was late in the evening when the child fell sick. There was no

transport from the village at that hour, so they walked five kilometres to get a bus to Ernakulam and they went to an allopathic government hospital. Here, the point to be noted is that both Bava and his wife Kali were illiterate, worked as agricultural labourers and belonged to the Pulaya, lower caste. In fact, most labourers went to government clinics and hospitals or missionary hospitals for treatment as they were cheaper than the private clinics.

The timely treatment of the sick even among the lower castes, illiterates and agricultural labourers has been a significant change and this is mainly because of the social and economic changes that have occurred in the village.

As mentioned earlier, the position of the lower castes has improved in the village. This has allowed them to use health services and educational facilities which has had a significant effect on the health status of the village. Because of land reforms and inheritance changes, opportunities in agriculture have diminished and people depend on the jobs outside agriculture. As many of them commute to nearby towns for work, they are exposed to urban facilities such as health services, entertainment and markets. Land reforms have also changed the master-and-slave relationship between the land owner and the labourer. This has produced egalitarian ideas, especially in use of public facilities such as school, health and transport by everyone.

## Summary and conclusion

The above discussions show that the Western medical system has not replaced the traditional system, but co-exists in the village. The widespread use of the Ayurvedic system may be partly explained by the availability of herbs and roots in the state because of its ecological conditions. Although the belief system influenced the utilization of medicines, the important factor in mortality decline was that Western medicines were used for life-threatening sicknesses and traditional treatment was used for simple ailments which did not risk lives.

The plurality in seeking cures has been observed in other parts of India (Gould, 1959; Minocha, 1980; Caldwell *et al.*, 1983), but this Kerala village differed from those accounts because of the promptness in seeking treatment and also the narrowing gap in pattern of seeking treatment between different socio-economic levels.

The major factors related to this narrowing gap are: the weakening of caste relations has allowed every one to use the facilities; higher literacy levels have imparted knowledge about health services among every caste and class; the transport system has helped in reaching medical facilities in towns and cities; and because women enjoyed higher status, they took the initiative in treating children which in turn has helped in the reduction of infant mortality in the village.

To a great extent, the socio-economic changes in the village have reduced the fatalistic attitude regarding sickness. However, there are also factors such as nutritional levels and preventive measures (environmental factors and personal hygiene) which influence the health status of the community, and beliefs related to these areas need further research.

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## Chapter 48

# A few cultural concepts and socio-behavioural aspects of human health in India

Abusaleh Shariff

### Introduction

Health is a private asset whose production and maintenance is often beyond the capacity of an individual, so institutional and co-operative efforts are needed. The causes of ill-health are many. They are complicated and mostly exogenous, affecting the biological balance and harmonious link between the body and the mind. In a tradition-bound and less educated society, sickness carries connotations of mystery, leading to fatalism or to the view that sickness is beyond human control. Sickness, treatment and health have religious connotations as well, next in importance only to sex. The common belief in India is that the state of health is regulated by a predetermined scheme of fate and *karma*<sup>1</sup>, which has a logical connection with the traditional theory of rebirth. Death rather than recovery to health is the direction of transgression; suffering rather than seeking treatment is the way to attain *moksha*<sup>2</sup> and purity; atonement rather than medication is the obvious choice of action. Resort to healing and medication is originally considered to be only an incidental behaviour and the orthodox may view this as a sign of failure or even disgrace.

Nevertheless, these concepts did not altogether eliminate the need to develop indigenous medical and curative knowledge. In fact, the development of local curing systems is consistent with the fundamental aspects of culture and religion. The intervening factor which allows for medication is that to time one's own death and, in turn, rebirth is also beyond the control of a human being; thus medication is an insurance against non-interference in the supernatural scheme of life and death.

Although the traditional curing schemes aim at the elimination of a particular type of sickness from its base so as to root out the causes of sickness, the emphasis seems to be on post-episode treatment. The episodic view of disease guiding a behaviour aims at actual cure with no concern for prevention of illness in the first place. It appears that such behaviour has its origin in the absence of knowledge relating to bacteriology and virology. The source of sickness is believed to be in the imbalance of the elements of life and of the human body, or of traditionally perceived endogenous factors. The types of exogenous factors causing sickness are the wrath of gods and goddesses, extraterrestrial bodies such as

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<sup>1</sup> From a common man's point of view, the present life is an intermediary stage in a series of lives. The present quality of life is determined by the religious achievements in the past and the next life will be determined by the achievement in the present. The concept of *karma* thus is expected to guide people to choose the religious path of worship and goodness.

<sup>2</sup> *Moksha* has various meanings depending upon particular contexts, but it normally means solace, or relief.



the *grahas* or *nakshatras*<sup>3</sup> and the influence of spirits. In addition, the many concepts of purity and pollution are guided by ascribed factors such as caste rather than actual contamination.

### Modern medicine and health care

Extensive use of modern (allopathic) medicine and health care has been consciously encouraged in India by public bodies since Independence; the growth of formal education took off simultaneously. Efforts through public investments have achieved some success in introducing many new concepts of health care into the social system. Although a certain degree of secularization has taken place, the current situation is one in which both traditional and modern concepts are prevalent and interwoven with the schemes of health-seeking strategies. There has been obvious confusion caused by competing, often contradictory, schemes of health care, frequently leading to a switch from one type of treatment to another, and to a return to the original type or the simultaneous use of more than one type. Since traditional medicine and methods of curing are not a single recognizable scheme<sup>4</sup>, allopathic medicine has also found its own place in the assortment of alternatives. Nevertheless, modern medicine has taken a dominant place within the set of available treatment strategies.

The availability of standardized dosage of medicine in the form of tablets and capsules, the administration of medicine through injections and the reputation for quick relief of the allopathic system have clearly impressed the policy makers, the Indian elite and philanthropists; yet modern medicine has not systematically penetrated the social system, because of the multiplicity, complexity and diversity of disease patterns, and the mystery surrounding disease. On the whole the extent of use of modern medicine is limited by problems not only of choice and trust but also of availability and affordability. There is a need for close scrutiny of the problems of trust, choice and continuity in modern health-producing behaviours, within a recognizable framework of the components of Primary Health Care (PHC).

There is another issue which requires attention. It may be convincingly argued that another way to improve the general health status is to develop and upgrade biological immunities in the target populations. Should there be an overall emphasis on control of environment through attempts to eliminate and isolate harmful bacteria and viruses, or should the emphasis be on the cultivation or development of immunities within the human population? Given the cost and time constraints and the level of technology, the approach needed is one leading to improvement in the environment through elimination of the sources of illness.

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<sup>3</sup> *Graha* means planet and *nakshatra* star. The planets and stars have a vital influence on individuals' life and behaviour in traditional Indian philosophy.

<sup>4</sup> Traditional or indigenous schemes of treatment are of many types, such as magical medicine, religious exorcism, sacerdotal medicine, snake-bite curing and the indigenous secular medicines of Ayurveda, Unani and Sidha (for more on this see Marriott, 1955). Homoeopathic medicine is also practised. Self medication with home remedies and herbal concoctions is common.

**Primary health care (PHC): a cultural and socio-behavioural framework**

Although the pre-Independence mortality transition was mostly a response to improvements in transport and communication which enabled quick and timely relief, the introduction of Primary Health Care on a mass scale since Independence has activated the process of social change, resulting from improved health and consequent increase in longevity. But progress in the mortality transition seems to have been retarded by slow progress in the decline in childhood and infant mortality from the late 1970s to the present. This has raised many doubts about the extent of use and efficiency of PHC in India, and social scientists and health care planners have lately begun to explore the reasons for the stalling of the health (mortality) transition. Both the academic and professional discussions are now pointing to the need to understand the cultural and socio-behavioural aspects of health care use.

There are three main dimensions of modern PHC: promotive, preventive, and curative health care. Each has a definite relevance to state of health and they can also be further split into various components. On the basis of the criteria used, demarcations can be made so as to study the various components within a cultural and socio-behavioural framework. The following statement systematizes these issues.

**Statement 1**  
**Components of primary health care and their various dimensions**

Components of PHC	State of health to which a particular component has reference	Dimensions of a particular component of PHC
1.Promotive health care	Normal state of health	1.Nutritional balance and adequacy. 2.Clean and potable water. 3.Sanitation and public hygiene. 4.Private/personal hygiene.
2.Preventive health care	Normal state of health	5.Mass prevention of immunizable diseases.
	Symptomatic state of health	6.Post-symptomatic prevention of locally endemic diseases.
3.Curative health care	Sick-ordinary	7.Care and treatment of ordinary sickness.
	Sick-persistent	8.Care and treatment of chronic sickness.

A total of eight dimensions have been identified which have an association with a particular component of PHC. It is possible to present the cultural concepts which are likely to play a role in determining behaviours affecting the state of human health. The following presentation will help in simplifying these relationships and associations. It is necessary, however, to emphasize that the subsequent listing is not exhaustive but presents some factors which may determine a behaviour within the dynamic process of Sanskritization and



Westernization<sup>5</sup> taking place within the Indian social system. The extent to which these factors influence the society at large and the respective intensities are highlighted appropriately. The whole analysis needs to be understood within a dynamic structure with social, economic and regional differences.

### Cultural factors affecting various dimensions of PHC

Cultural factors or traditions affect various facets of life in different ways. They may help and even contribute in the case of a few processes of social change; on the other hand they may impede the desirable changes expected from scientific programs. For example, the practices of long breastfeeding and of isolating newborn infants have positive effects contributing to the health and limiting the exposure to sickness of the infants; but there are many other practices which have dangerous consequences. This paper emphasizes disadvantageous cultural factors.

#### Nutritional balance and adequacy

With the modest success of the 'Green Revolution', India is in a comfortable position in the production of common grains and millets; it is also maintaining decent levels of buffer stocks even during and subsequent to drought. There are problems of shortage in edible oil production, but timely imports maintain the per capita availability. There has been fair success in efforts to improve the production and distribution of milk, and the availability of meat and seafood has also increased lately. On the whole, India can easily produce and supply food products.

In spite of this, the population at large is undernourished and many groups of people are malnourished because the common man cannot afford the daily requirements for himself and his dependants. The purpose of this paper, however, is to list and discuss the cultural factors affecting the nutritional balance and adequacy within the above constraints originating from unequal distribution of essential sources of nutrition and lack of purchasing power. The three cultural issues listed below are likely to affect the nutritional balance and adequacy with varied intensity among different subgroups of the population:

1. The concept of *tridosha*<sup>6</sup> and selective avoidance of specific food items on the basis of local classification as 'hot' and 'cold' foods. The selective avoidance is often linked to certain occasions, state of health (pregnancy, lactation, sickness), age and sex.

2. Culturally accepted diets within the limits of vegetarian and non-vegetarian classification of foods. Within this, there are practices such as consumption of unboiled milk, not eating particular types of vegetables even when abundant or cheap, and fasting, which affect nutritional balance and adequacy.

3. Observable differentials in intrafamily food distribution, especially favouring adults and males.

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<sup>5</sup> Sanskritization and Westernization are the two mechanisms which are almost simultaneously affecting the process of social change. These mechanisms are largely dependent on the social behaviour of emulation, intergroup competition and attitude to change. For more on these, see Srinivas, 1968; Caldwell, 1978.

<sup>6</sup> *Tridosha* is a basic concept dealing with the source of disease. It also advocates diet control as a major preventive and curative procedure.

### **Clean and potable water**

India has yet to achieve appreciable progress in the provision of potable water to its citizens. Since the majority of the population resides in villages, many of which are small, the consequent operational and technological constraints have inhibited timely progress; besides, lack of finance has led to delays in executing expensive water-supply schemes. Nevertheless, the cultural factors affecting this issue are specific to the traditional sources of water. It is well known that improvement in the quality of water for drinking and domestic use can eliminate the incidence of a range of illnesses, since many common, but fatal, sicknesses in India are water-borne, such as diarrhoeas, gastroenteritis, hepatitis and cholera. The following two factors have a cultural bearing regarding the use of water:

1. The concepts dealing with purity and potability of water are unrelated to bacteriology; and beliefs ascribing virtue to water almost always appear inconsistent with facts. People do not see clearly the cause and effect factors in water-borne diseases.

2. Source of water has almost no relevance to its potability as long as water is soft and appears visibly clean. People do not appreciate the great advantage of boiling water for drinking purposes. Boiling is believed to make water lose its mineral content and become tasteless; besides, boiling water for drinking purposes is very expensive, since Indian villages are seriously short of fuel which is mostly wood and cowdung.

### **Public hygiene and sanitation**

Sanitation and public hygiene probably rank second only to the role of water in improving the overall health status of populations. Owing partly to pressure of population and consequent problems of space, and partly to attitudes, there are no success stories in the management of civic sanitary amenities. Fast-growing urban and semi-urban settlements are notoriously poor in public sanitation and hygiene. The problem in the rural areas is slightly different because of various agricultural and livestock activities producing wastes which are almost always heaped in open pits or middens all around, and even within, the village, and the unguided flow of waste water in the streets is a major sanitary problem. On the whole, people have almost no control over their immediate environment, and hygiene and sanitation are unimportant issues, which precludes any organized and co-operative effort for their management. Three cultural factors are relevant to public sanitation and hygiene:

1. The concept of living quarters excluding a place for washing, bathing and defaecation, leading to an unclean immediate environment; this is not wholly the result of economic backwardness.

2. Often humans live along with their livestock in a single building under unsatisfactory sanitary conditions.

3. Common flies, mosquitoes, cockroaches and rodents are considered lesser evils than creatures like scorpions and snakes.

### **Private and household hygiene**

There are wide varieties in the maintenance of private and household hygiene. Mostly the practices are regulated by the economic level of individuals and families. The caste of individuals also plays a vital role in this regard.

1. Personal hygiene is less important than the purity of soul and self. Individual defilement is even today governed by the rules of caste and the physiological state of women. A high caste person may feel polluted by contact with an out-caste. Pregnant,



lactating and menstruating women are regarded as personally unclean and, therefore, such persons are subjected to isolation and care is taken to keep a safe distance.

2 There is a high degree of selectivity in the use of soaps, toothpastes and other toiletries, largely due to financial constraints.

3 The practice is to have a kitchen in the interior of a house, often lacking windows and ventilation. Cooking is normally done by burning wood and dung cakes, which releases an immense amount of smoke causing serious respiratory diseases.

4 Through lack of personal hygiene people may harbour, on their bodies and in their clothes, parasites which transmit germs and viruses.

### **Mass prevention of immunizable diseases**

Mass immunization can prevent a number of diseases suffered by people, especially children. The specific types of immunization undertaken by the health administration are BCG, DPT, Oral Polio, and measles for children, and Tetanus Toxoid for expectant mothers. There is, however, a considerable variation in the incidence, as well as impact of these immunizable sicknesses across and also within states; and the total mortality caused by all these diseases, even among children, is less than ten per cent (Registrar-General, 1979). Nevertheless, elimination of such diseases, besides improving the confidence of the population about child survival, also helps to reduce the risk of other illnesses which originate from them. Diarrhoea is one single cause of a considerable death toll, but an efficient preventive action program for this has yet to take effect.

The role of cultural and traditional beliefs is probably the strongest in the case of immunization. Although India has played an important part in wiping out smallpox, it is fairly difficult to explain how and why it succeeded. Smallpox vaccine could be maintained at room temperature, and the incidence of smallpox was sporadic and endemic, thus the style adopted was more case-specific than mass-preventive strategy. There are a number of impediments to the immunization program:

1. Although preventive concepts in terms of 'hot' and 'cold' foods exist, the concept of preventive health does not appear in the culture, especially in relation to a normal state of health.

2 Disability is regarded as less dreadful than disfigurement (this is a partial clue to successful smallpox eradication).

3 Self-limiting diseases, such as measles and chicken pox, are not subject to treatment. Rather, there are specific gods worshipped who are believed to protect and provide relief.

4 Propagation of mass preventive (immunization) messages is relatively difficult, especially in the case of children who have low social status. The belief in rebirth can also be viewed as a factor impeding voluntary demand for immunization.

### **Post-symptomatic prevention of locally endemic diseases**

Locally endemic diseases include malaria, tuberculosis, and leprosy; some of the cultural factors which prevent their efficient management are:

1. Absence of cause-and-effect perception of disease. State of health is culturally believed to be predetermined. Occurrence of a specific disease is attributed to a specific type of sin committed in the past, either in this or an earlier life. Leprosy is a good example.

2 Disfigurement rather than suffering is the guiding concept in comprehending the severity of a disease.

3. Post-symptomatic counselling and prescriptions have relatively better success than mass prevention. Case-specific identification, prognosis and preventive action are likely to penetrate the traditional behaviour.

### **Care and treatment of ordinary sickness**

India like many other tropical countries harbours many types of illness ranging from common colds and fevers to tuberculosis, leprosy and hypertension. Through lack of safety precautions, many suffer from external cuts and wounds. Skin diseases such as scabies, and eruptions causing deep wounds are very common. Because of unhygienic surroundings people also suffer from respiratory infections and allergies such as asthma. The perception and recognition of illness varies widely between groups and between individuals. Often people argue about whether treating a particular symptom or illness is worthwhile. Some of the identifiable cultural factors affecting care and treatment are:

1. Substantial delays occur before resort to treatment. The delays are longest for women suffering from gynaecological problems, and for children. Intrafamily relationships and division of labour determine who gets medical aid and when. Age and sex play a vital role.

2. There is always a hierarchy in resort to different types of treatment, ranging from home remedies, local or traditional medicine to modern medicine.

3. Invisibility of sickness is enough reason to terminate medication. A course of antibiotics may not be continued if the signs of sickness subside.

### **Care and treatment of chronic sickness**

In a discussion on sickness, there is a need for a distinction between ordinary and chronic illness; perception and behaviour regarding chronic sickness differ in nature and in the strategies chosen for its treatment. Cultural factors probably have their strongest effect during chronic episodes.

1. Treatment of chronic sickness is affected by fatalism leading to indifference or even total rejection of treatment. Death, rather than recovery, is the guiding factor which has its relation to the aspects of human interference in the natural scheme of life and death.

2. Although conceptually there is an emphasis on the elimination of disease from its roots, people aim at a quick recovery and shortest possible treatment schedule. There are, therefore, premature and frequent shifts in resort to different types of health care, as well as to dispensers of medicine. There is a recognizable paradox between belief and behaviour.

3. A sufferer from chronic illness comes to terms with the disease and tries to cope with it in a long-term perspective. The invalid is more likely to psychologically improve the level of tolerance and coping ability. In the process of coping, adaptation by motivation takes priority over adaptation by ability.

### **The nature of socio-cultural influences on health seeking behaviour: some evidence**

There has been hardly any organized effort by either health planners or academics to understand the relationship between culture and health, so it is not surprising that quantitative and measurable data are scarce. The National Directorate of Health Services collects data only on the causes of deaths which have occurred in medical institutions; these data are classified according to a standard WHO design which is needed for national-level comparisons. Although the age and sex breakup is presented, the data do not present the



actual picture of the level, incidence and distribution of causes of death for the community as a whole. By the directorate's own estimates, medically certified deaths constituted only about 16 per cent of estimated deaths in India in 1982 (Government of India, 1987). Thus, even the morbidity information is deficient, far from being a focus on the socio-cultural aspects of disease and death.

The Registrar-General's Sample Registration System conducted an Infant and Child Mortality survey in 1978, in 2,345 rural and 1,328 urban blocks, covering a total sample of 727,667 households. Although information on certain variables is poor, this survey is a good bench-mark source of data on mortality and morbidity among children by residence (rural-urban), sex, and a few socio-economic categories such as education and levels of living.

It is evident that there is a dearth of quantitative knowledge about morbidity and health. However, human health is a complex issue, especially in a tradition-bound culture such as India's, which cannot adequately be comprehended by quantitative data alone. There have been a number of studies of a qualitative nature, mostly using ethnographic and anthropological designs, exploring the socio-cultural and behavioural dimensions of sickness and treatment (Marriott, 1955; Carstairs, 1955; Opler, 1963; Hasan, 1967; Taylor, 1968; Beals, 1976; Mathews, 1979; Caldwell *et al.*, 1983; Zurbrigg, 1984; Shariff, 1987a; Jeffery *et al.*, 1988); but, in view of the size and socio-cultural diversity in India, there is a pressing need for more organized and continuous research in this field. It is, by now, well-recognized that a purely medical and technical approach to health has not helped to improve the overall health status of populations (Ng and Davis, 1981).

Both the quantitative and qualitative reports make it clear that social and cultural factors are not only impeding the use of available health services, but also hampering their extension. A few specific issues, based on recent field work experience in Gujarat and my earlier work in Karnataka, are discussed below.

### **Maternal and child health (MCH) in the context of culture**

Child and maternal health has been a recognized policy issue facing Indian planners since the time when it was hypothesized that fertility decline is possible only when infant and child mortality falls. Thus, an MCH program was introduced in the early 1970s as a package consisting of antenatal, natal and postnatal services for mothers and immunization and vitamin supplements for children. As recently as the early 1980s, oral rehydration therapy was added so as to reduce morbidity and deaths from diarrhoea and dehydration; measles vaccination was introduced in 1986. The whole strategy rests on the extension approach through a fairly impressive infrastructure of trained paramedical personnel. The MCH program, however, has had limited success, enabling only selected groups to use some services. Although there are serious logistic and operational problems in delivery of services, the MCH program is also a victim of many types of cultural influences: it engages the most fundamental beliefs, even more than does family planning.

The MCH program has made different impacts in different parts of the country: variations are substantial even between villages within a micro-region and between communities within a village. For example, the MCH has shown a modest success in some parts of Karnataka<sup>7</sup> whereas the achievements are barely noticed in many parts of

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<sup>7</sup> The Gujarat Institute of Area Planning is undertaking a methodological study on the measurement of the inputs and the impact of the family planning program in the State of Gujarat. This study is funded by the Rockefeller Foundation.

Gujarat<sup>8</sup>. In an intensive survey of 1,000 households in Coorg district in Karnataka, the DPT, Polio and BCG vaccination acceptances were as high as 81, 79 and 68 per cent respectively (Shariff, 1987b), but these proportions are roughly estimated to be less than 30 per cent in Bhavnagar, Amreli and Valsad districts in Gujarat. Within these districts there are villages where there was fair acceptance, and those accepting belonged to high castes such as Brahmins, Jains, Patels and Rajputs.

There are many reasons for these differentials, but one major factor is acceptability of immunizations. Although many people expressed ignorance of the availability of immunization in rural Gujarat, those who knew about it did not feel it was necessary. Oral polio vaccine was popularly known, but many claimed that the vaccine itself had often caused polio<sup>9</sup>. Similarly, DPT immunization causes mild fever which parents do not easily accept. Measles vaccination has no takers, for many deep rooted beliefs exist which are discussed below.

### *Practices surrounding measles: a case study*

Measles is an age-old sickness common mostly among children. It is self-limiting once it appears it follows its own course and subsides by 9 to 11 days; it is known to appear only once in a lifetime. Measles among infants and children in India can be fatal; it is also sure to cause additional and subsidiary diseases contributing to prolonged sickness and even death. The preference among the common people is for children to get measles as quickly as possible so that they will then be free from it for the rest of their lives. Obviously measles has been endowed with mystic attributes and a number of practices have emerged

A child infected with measles is believed to be possessed by Mataji, a common goddess; care is taken not to displease her by seeking medication. The child and its mother do not bathe during the sickness period lest Mataji escapes. The mother tries to isolate both the child and herself to avoid contamination from others which would enrage the possessing deity<sup>10</sup>. Many decorate their main doors and thresholds as a sign of welcome so the deity will favour the house by making the child contract measles from a neighbour. I was astonished to find that even if a child dies of measles parents do not express sadness, and mourning is not permitted. In the rural parts of Saurashtra in Gujarat the cultural beliefs are strongest against measles inoculation. No wonder some women who were being interviewed wanted to know whether the measles immunization was in fact meant to make a child contract measles.

Anjuben (Patel caste) aged 26, lives in large village with her husband and six children. The day we visited to invite her to participate in a focus group interview, we found her caring

<sup>8</sup> In 1986, I undertook an evaluation study of the family planning program in Coorg district in Karnataka. This survey was undertaken by the Institute for Social and Economic Change, Bangalore.

<sup>9</sup> Because of problems in maintaining and storing polio vaccine at very cool temperatures, often the vaccine administered to children would have lost its immunological character. Similar problems exist even in the case of DPT, BCG and measles vaccines.

<sup>10</sup> Isolating the measles patient is a desirable behaviour, but this happens for an entirely different reason in India.



for her two youngest sons, 18-months-old twins, in cloth hanging cradles, one on each side of her. A daughter of about three lay in a corner inside the house and another daughter was seated near Anjuben. All these four children were suffering from measles; the most severely ill were the twin sons and the daughter just older; Anjuben herself was suffering from high fever. In the courtyard, there were two *khatyas* (local variety of cot), on one of which was seated Anjuben's mother, aged over 60, who had been especially sent for from her village to look after the sick children and her daughter.

Since it was the beginning of summer, there were a lot of flies; partly for this reason the three very sick children were completely covered with clothes and rags. Throughout both the inside of the house and the courtyard were dirty, stank of the children's excrement, and swarmed with flies.

Although aware that Anjuben could not possibly leave the sick unattended, we told her the purpose of our visit; straight away her mother answered: 'Don't you know the children are possessed by Mataji and that she cannot mix with people lest she brings in contamination?' From curiosity, we enquired about the treatment being sought for the sick children. They had been sick for many days, the twins being the last to become sick, and none would move out for at least another seven days; nor would any treatment be ventured until the waiting time was over because moving out would ritually contaminate them, thus enraging Mataji. This was also the reason that neither the sick children, nor their mother, would take a bath.

When we asked if the local health worker had ever told them that measles can be avoided by getting children immunized, they forthrightly asserted that, even if such a thing existed, they would not accept it. Accepting measles immunization would mean disobeying and enraging Mataji. Similar beliefs in varying degrees exist in almost all of rural India. It can be understood from this case that at least this family had little concern about the communicability of the sickness. It is almost impossible to follow the rules for isolating those who contract communicable diseases in the rural Indian situation.

### *Maternal health and gynaecology*

There are also problems with maternal health. Although pregnancy is a state in which a woman is regarded as not in normal or good health, it is a condition not needing medical care. There are occasions when a woman gets her pregnancy checked and may also receive tetanus toxoid inoculations, but such occurrences are often likely to be a positive result of social conflict between the two families to which the couple belong. For example, a mother-in-law may arrange for a checkup, largely to make the point that she is indeed caring for her daughter-in-law during her pregnancy. In Gujarat many births in private dispensaries are from the first pregnancy after marriage. A voluntary and genuine demand for these services is yet to appear in any appreciable scale. Nevertheless, maternal services are received with relative ease because they are viewed as post-episodic treatment, as opposed to immunization which is preventive.

Receiving help from a trained birth attendant (TBA) or referring a pregnant woman to a maternity institution also depends upon many factors, including economic considerations: even a TBA under the government program may demand substantial and often unaffordable rewards for her services. Other important factors are the pregnant woman's age, parity and the family which is responsible for her. But there is strong evidence that the TBA or an institutional facility is sought only when there is a difficult labour, and often such decisions are made too late.

Maternal health is also affected considerably by gynaecological complaints. During the most recent investigation in Gujarat villages, it was found that these complaints were kept secret even from other family members. Women are not only embarrassed to disclose gynaecological disorders, but also afraid that their husbands may decide to take another woman. In a tribal area in Valsad district, women were reluctant to disclose their gynaecological complaints, while the men confirmed that such complaints were common. In rural areas, women cannot easily approach a practitioner or a clinic on their own; we came across many who had not managed to reach a doctor until two or three years after the onset of sickness, by which time they had developed multiple and chronic complaints (there are similar reports from urban areas). Beside the severity of the illness, fear of sterility drove women to seek treatment. Another factor which has contributed to substantial delays in seeking medical aid is the absence of female medical practitioners both within the government rural health program and in the private sector. Of the 25 or so allopathic trained rural doctors in a district of Gujarat, only one was a female. By improving the supply of female doctors this problem can partly be tackled.

### **Health-seeking behaviour in general**

#### *Care for children*

A female child aged about 14 months was rushed to a rural health dispensary on a motor cycle, at about 6 pm which was the closing time for the dispensary. The father, his younger brother and the grandmother accompanied the sick child; fortunately the doctor was available and he immediately started treatment. The child was unconscious and motionless, had vomited blood and appeared seriously dehydrated. The doctor initially diagnosed meningitis, gave two injections and prescribed a medicine to be bought from a pharmacist. The doctor himself suggested that the medicine would be available only from the district town 74 kilometres away; but by 7.30 pm he had changed the course of treatment, and gave one full bottle of liquid glucose intravenously. After this rehydration process, the child recovered to a satisfactory state and was discharged by 10.30 pm. The final diagnosis was a simple incidence of dehydration which could have resulted in septicaemia; if not treated, the child was likely to have died before daybreak. We talked with the father and the grandmother. The sick child was her parents' fourth child and third daughter; they lived in a village five kilometres away and the father was a bricklayer. Responsibility for the care of the child rested with the grandmother, who said that she had been normal and playing as usual when suddenly she became sick that afternoon; but according to the doctor's assessment the child must have suffered dehydration from diarrhoea or vomiting or both for a fairly long time.

Often people hide the pre-treatment history of sickness because they are the ones likely to be held responsible (especially in the case of death) for inaction and delay in seeking medical aid. The grandmother did say that she had decided to bring the child for treatment because she would otherwise be criticized by neighbours for her negligence. She hastened to add that it would not have mattered much if this girl were to die because there were two other grand-daughters at home! Although in this case, the female child was brought to a clinic and recovered to a satisfactory state of health, expressions of attitudes discriminating against female children are abundant. Nonetheless, it is almost impossible to capture this attitudinal factor in surveys (for more on health-seeking behaviour, see Shariff, 1987a).



**Table 1**  
**Crude death and infant mortality rates over time in India**

Period/Year	Death Rate (all India)	Infant Mortality rate (all India)
1881-1891	41.3	NA
1891-1901	44.4	NA
1901-1911	42.6	NA
1911-1921	47.2	212
1921-1931	36.3	176
1931-1941	31.2	168
1941-1951	27.4	148
1951-1961	22.8	146
1961-1971	19.0	NA
1971-1981	15.0	123
1971	14.9	129
1976	15.0	129
1981	12.5	110
1982	11.9	105
1983	11.9	105
1984	12.6	104
1985	11.7	95

Source: Davis, 1951; various Census actuary reports and sample registration system publications.

It must be stressed that only a small proportion of sick children are, in fact, referred to medical institutions or trained medical practitioners. This statement is partly supported by the data in Table 2, which relates to the distribution of deaths by type of attention received at the time of death. The distribution of sickness by type of attention also has approximately similar levels and patterns. Taylor *et al.* (1983) worked out the annual average days of illness per child by age of child for their study in villages in the Indian Punjab. On an average the infants were 135 days ill in the control villages and 113 days in the project villages. The number of days children 1-3 years old were sick were 105 and 83 respectively. The situation would not be much different in other rural parts of the country, except in the state of Kerala. The most common endemic diseases in Gujarat during March-April 1989 were diarrhoea, measles and malaria (all widespread), conjunctivitis and scabies (specific villages) in that order. Many children were also reported to have been affected by poliomyelitis. For malarial fever, treatment was rarely sought from medical or paramedical personnel or institutions; diarrhoea and conjunctivitis are never seriously regarded as illness. Although many children may die of diarrhoea, people attribute these deaths to the associated symptoms such as fever or vomiting. In Karnataka, infantile diarrhoea is identified as *balagraha* and only chants and amulets are sought to scare away the evil spirits; in Gujarat, there is no parallel belief, yet the sickness is so common that people do not consider organized treatment unless it is associated with other complaints.

Table 2  
Per cent distribution of infant and child deaths by type of attention at death, 1978

	Medical Institutions				Trained Medical Practitioners				Untrained Medical Practitioners				Others			
	Rural Infant 1-5 years	Rural Infant 1-5 years	Urban Infant 1-5 years	Urban Infant 1-5 years	Rural Infant 1-5 years	Rural Infant 1-5 years	Urban Infant 1-5 years	Urban Infant 1-5 years	Rural Infant 1-5 years	Rural Infant 1-5 years	Urban Infant 1-5 years	Urban Infant 1-5 years	Rural Infant 1-5 years	Rural Infant 1-5 years		
All India	30.2	42.5	56.8	62.3	11.5	16.2	13.7	15.6	21.6	20.6	6.5	5.0	36.7	20.7	22.9	17.2
Kerala	75.1	87.3	97.3	91.2	4.3	2.4	-	5.9	7.3	3.2	-	2.9	13.3	7.1	2.7	-
Tamil Nadu	48.7	54.8	89.4	83.1	12.6	9.4	6.5	2.6	23.0	18.7	4.1	11.7	15.7	17.0	-	2.6
Maharashtra	32.8	38.2	66.4	61.9	4.8	4.0	12.9	9.5	13.0	8.0	12.1	15.9	49.4	49.8	8.6	12.7
West Bengal	53.6	73.5	66.7	65.2	0.9	1.8	9.2	18.2	11.7	13.2	10.0	3.0	33.8	11.4	14.2	13.6
Gujarat	22.6	42.2	72.3	74.0	15.4	23.9	6.3	11.0	16.8	17.4	5.0	1.4	45.2	16.6	16.4	13.7
Punjab	50.9	58.3	66.7	65.5	34.6	30.9	28.4	31.0	8.7	9.1	-3.5	5.8	1.7	4.9	-	-
Karnataka	38.3	45.2	48.8	55.1	8.0	8.2	11.3	8.2	22.0	26.5	7.5	6.1	31.7	20.1	32.5	30.6
Hariyana	36.9	50.3	62.7	72.3	23.7	23.4	14.7	19.2	10.7	11.4	4.0	4.3	28.7	14.9	18.7	4.3
Orissa	23.6	44.7	44.5	68.1	4.9	6.6	8.9	-	18.7	11.7	6.2	1.4	52.7	40.4	37.1	30.6
Andhra Pradesh	19.7	23.8	42.5	60.0	6.0	6.9	7.6	-	38.9	37.0	10.4	14.3	35.3	32.3	39.6	25.7
Madhya Pradesh	31.1	30.7	8.2	5.4	35.2	10.2	24.6	10.3	32.8	-	26.2	-	35.2	24.2	23.4	12.3
Uttar Pradesh	31.1	30.7	8.2	5.4	35.2	10.2	24.6	10.3	18.1	27.8	42.3	53.9	15.6	31.2	24.9	30.4
Bihar	25.6	26.7	61.7	60.0	10.7	21.6	13.3	5.0	25.8	25.4	18.3	20.0	37.9	6.7	26.4	15.0
Rajasthan	29.8	53.5	59.8	77.6	6.3	11.4	18.6	14.9	23.0	19.5	7.8	1.5	41.0	15.6	13.7	6.0

Source: Registrar-General, 1979



### ***Social-distancing: a factor inhibiting health care***

Another social factor affecting diagnosis and treatment is the social distance between the sick and the real decision-maker. An adolescent girl, aged about 16 years, was diagnosed as suffering from near-blindness by her own parents who both were trained nurses. When they were arranging for treatment for blindness for the two sons of a neighbour, their own daughter spoke up and announced that she also had problems in reading her lessons. After an ophthalmic examination it was found that she had had poor vision for about six years. Her parents' previous neglect of her condition was caused by social distancing between them and the girl as she approached maturity. Intra-household relations appear to be important in both the identification and treatment of sickness, especially during childhood, adolescence and old age.

There are other family pressures as to who can decide about caring for the sick. For example, a wife about 35 years old was permitted to make decisions about her father-in-law's medication, but she had no control over the medical treatment of her own children.

### **Macro level evidence of differential health transitions in India: the role of female education**

India is a vast country. There are 14 states with populations of 10 million or more, which are also economically different and culturally diverse. During July-December 1978 the Sample Registration Systems network undertook a nationwide survey of infant and child mortality in a fairly large number of households. Data on many social and economic variables were also collected (Registrar-General, 1979). One of these variables which reflects a composite picture of social development is education, especially of women. The relationship between female education and infant mortality is discussed below; this relationship is expected to guide us in understanding the factors likely to contribute to speeding up the health transition.

The importance of parents' education, particularly maternal education, for the health and survival of children has been well documented in the recent past (Caldwell and McDonald, 1982; Cleland and Van Ginneken, 1988). It can also be hypothesized that the role of female education is dependent on the nature of the population as a whole: even the illiterates in a literate society may behave in a way comparable to the behaviour of literates in an illiterate society, regarding child care and child survival. Thus maternal education amidst high levels of overall education may be necessary to break the cultural and social barriers which impede a secularization process activating health transition.

The data drawn from a national-level survey (Registrar-General, 1979) help in understanding these processes. Table 3 presents infant mortality rates for 11 major states<sup>11</sup> by rural-urban residence. Number of households surveyed in each state is also presented. The states are arranged in descending order based on the level of female literacy according to the 1981 Census of India. A general trend of high infant mortality among states with relatively low female literacy is noticeable; the infant mortality differentials are more pronounced in the rural areas of almost all states in India.

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<sup>11</sup> Data for West Bengal, Karnataka and Bihar are not presented because they are either incomplete or of questionable quality.

**Table 3**  
**Female literacy and infant mortality rate by residence for selected states in India**

	Female literacy	Infant mortality rate 1978			No. of households surveyed to collect data on IMR	
		Rural	Urban	Total	Rural	Urban
All India	25.6	136	71	126	519,714	207,953
Kerala	70.8	42	26	39	41,111	11,969
Tamil Nadu	34.7	120	63	103	49,211	13,869
Maharashtra	34.6	84	56	75	35,245	17,020
Gujarat	33.2	127	88	118	40,689	9,849
Punjab	32.4	111	65	103	16,590	7,648
Haryana	21.6	116	59	109	12,296	7,045
Orissa	21.2	137	80	133	21,316	11,162
Andhra Pradesh	20.0	120	62	112	50,104	12,410
Madhya Pradesh	15.9	141	86	135	24,224	8,842
Uttar Pradesh	13.9	172	110	167	30,008	18,124
Rajasthan	12.0	139	65	129	26,669	10,167

Source: various statements in Registrar-General, 1979.

Note: 1. States are listed in descending order based on female literacy rates.

2. Data for West Bengal, Karnataka and Bihar are not presented because they are either incomplete or of questionable quality.

**Table 4**  
**Infant mortality by level of education of women and residence**

	Illiterate		All literates		Literate but below primary		Primary and above	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
All India	145	88	90	50	101	57	71	47
Kerala	55	29	37	25	44	40	29	21
Tamil Nadu	128	85	76	44	89	53	50	37
Maharashtra	89	73	73	40	86	55	54	33
Gujarat	138	89	101	81	112	84	51	79
Punjab	128	95	61	45	87	63	48	40
Haryana	122	79	94	42	96	41	93	43
Orissa	141	99	107	49	124	60	56	35
Andhra Pradesh	128	70	75	46	75	28	77	59
Madhya Pradesh	145	107	104	71	89	62	117	76
Uttar Pradesh	188	125	132	86	141	105	115	72
Rajasthan	142	71	84	51	98	73	59	35

Source and Notes as in Table 3.

Table 4 presents infant mortality rate by level and status of education among the women surveyed. Although rural and urban rates are separately presented, the discussion will focus on rural figures. A fairly clear picture emerges to suggest that the infant mortality rates among illiterate mothers living amidst relatively literate populations (i.e. in Kerala,



Tamil Nadu, Maharashtra, Gujarat and Punjab) are comparable to the rates among the educated mothers in less literate populations (i.e. in Rajasthan, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh and Orissa).

Another relationship which is useful in an analysis of the effect of female education is its association with rural and urban residence. The general pattern (with the exception of Tamil Nadu and Punjab) is that the lowest infant mortality is found among literates living in urban areas followed by urban illiterates, rural literates and rural illiterates, each showing progressively higher rates. Table 5 presents this data in an index form in which IMR among urban literates is treated as equal to 100. Although there are no recognizable patterns in the level of infant mortality among the rural literates, rural or urban residence clearly plays a relatively large role. It is likely that because of proximity to health care in urban areas even illiterate mothers seek timely health care and become better child carers. Although the disparity between literate and illiterate mothers in urban areas is noteworthy, the disparities in rural areas are substantial. This pattern suggests a greater role of female education in reducing infant mortality in places where the health care facilities are inadequate or scarce as in rural India. Thus it seems that for an improvement in child survival, and to reach a fair level of health transition, educating females is a good strategy in the rural Indian situation.

**Table 5**  
**Infant mortality by education of women and place of residence as an index of urban literate IMR**

	IMR	Urban literate	Urban illiterate	Rural literate	Rural illiterate
All India	50	100	176	196	290
Kerala	25	100	116	148	220
Tamil Nadu	44	100	193	172	291
Maharashtra	40	100	183	183	223
Gujarat	81	100	110	125	170
Punjab	45	100	216	136	284
Haryana	42	100	188	224	291
Orissa	49	100	202	219	288
Andhra Pradesh	46	100	152	163	278
Madhya Pradesh	71	100	151	197	204
Uttar Pradesh	86	100	145	154	291
Rajasthan	51	100	139	165	278

**Some specific issues and concluding remarks**

People have a vague knowledge of the critical times of the year when particular types of sickness appear, and the age at which people are susceptible. There is a need to rationalize such knowledge and communicate the preventive measures through mass media and intensive campaigns.

There is some useful knowledge about sickness, but it is not widely practised. The usefulness of human urine as a disinfectant, especially for washing and cleaning wounds, is known, but this is seldom practised. Similarly, de-worming through the oral administration

of the purgative castor oil is a regular practice among the middle class in Karnataka and Andhra Pradesh, but it is less common among other populations and in other states.

The practice of using water from the historic step-wells and conserving rain water in open pits, to be used during scarcity, is very common in Rajasthan. Both these sources are known to be notorious for spreading water-borne diseases, and the step-wells also transmit threadworms. The concept of sterilizing such water by boiling is not adequately propagated. There was a report in a widely circulated daily newspaper in February 1989 that the Ahmedabad Municipal Corporation had made special arrangements to supply extra water so that people could become ritually clean by bathing after sighting the lunar eclipse.

There is another paradox with respect to health care and utilization. Although many types of preventive care services have been designed to be supplied at the door, in reality, this does not happen. Moreover, the curative services are available through dispensaries staffed with highly trained doctors, but are socially inaccessible for a great majority of the population. For example, an allopathic trained doctor is too big a bureaucrat for ordinary people who hesitate to approach him. Similarly, at the village level, a high-caste female health worker serves no purpose for a large section of the population belonging to the intermediate and low castes.

In urban areas, the problem is slightly different, but still serious. A slum population, living less than one hundred yards from a large civic hospital, does not use either its preventive or curative services; people view this hospital as too sophisticated a place for them to enter. Besides, the major complaint relates to long waiting time and running around which patients have to do to get simple services. 'As soon as one is in this hospital, they (hospital staff) give injections once on this side and then on the other; the approach is too impersonal and above all we have no intention of dying'. People are aware of the high death rate among the hospital inpatients, and they think there are always pressures on them to be admitted once they enter a hospital.

The residents of this slum normally visit two private doctors who are very popular, even among other slums. There is a standard fee of seven rupees and also these doctors do not insist on hospitalization. Waiting time is short and patients do not have to go from one doctor to another. Many of the slum women work as maidservants and also undertake begging. While doing this, they also ask for simple medicines from the middle class locality which they serve.

The aspects of human health are many and complex, not only because of the social and cultural factors affecting them, but also through problems of accessibility. On the whole, health seeking behaviour is open to more organized and rigorous study and documentation.

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## Chapter 49

# Child health among the Jakarta poor

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### Introduction

One of the objectives of this meeting is to consider the role of social and cultural factors in determining health levels.

While information was being gathered for this study of health levels and health behaviour among the urban poor in Jakarta, patterns emerged which indicate the relative importance of socio-cultural factors versus environmental and economic factors relating to the low levels of health in these communities.

The argument developed in this paper is that the high levels of infectious disease morbidity in the study community are due largely to the poor environment and related living conditions and their incidence is not markedly increased by medically unsound (modern) health beliefs. The causes ascribed to the important diseases were sometimes consistent with modern medical concepts of infectious disease aetiology, though more often based on traditional Javanese concepts of a 'naturalistic' cause. As this belief does not ascribe a causative 'agent', some probable sources of bacterial or viral infections appear not to have been recognized as such. More important for health behaviour is the concept of certain illnesses being due to an imbalance of 'heat' and 'cold' in the body.

The approaches to managing each of the most important diseases are remarkably similar, usually starting with self treatment at the bottom of the health service hierarchy regardless of illness severity. This pattern is very often related to the need to restore the 'hot-cold' balance in the body, therapeutic choices being made accordingly. It cannot be ignored, however, that health behaviour was also determined by considerations of the costs of medicines and health services in conditions of financial stringency. Thus economic need, compounded by a limited social network for obtaining loans, manifests itself by delays in seriously ill children presenting at the appropriate higher-level health service in time for treatment to be effective.

### Background

The justification for treating the urban poor of the developing world as an identifiable group is that urbanization is proceeding at a rate which will result in an estimated 44 per cent of the people of the Third World living in cities by the end of the century. Half of these urban dwellers will be leading difficult lives in low-income settlements – either slums (old deteriorating core city tenements) or shanty towns on the periphery 'in the shadow of the city' (Harpham *et al.*, 1985:3; 1988). Reviews of the health problems of the urban poor (see Ebrahim, 1984; Rossi-Espagnet, 1984; Harpham, 1986) point out that such people experience high levels of infectious diseases associated everywhere with low income, low education, and inadequate diet, but they are also exposed to additional problems of overcrowding, poor housing, pollution due to traffic and industrialization, and the psychological and social insecurity which accompanies physical separation from extended family and community. These circumstances can compound poor physical health with depression, alcoholism, and family instability (Harpham *et al.*, 1988:41). These negative aspects of the world of the urban



poor are further compounded by the evolution of urban health services which emphasize hospital-based medical services rather than the community-based services which are becoming prevalent in rural areas of the Third World as part of the growing primary health care (PHC) approach (WHO, 1978). A contributing reason for this situation is that the PHC approach is generally based on rural social networks and administrative structures which are assumed not to exist in urban areas where communities may not be ethnically homogeneous.

In this paper an urban community, composed mostly of rural-urban migrants, is examined to attempt to understand how the social and cultural characteristics of its members contribute, positively or negatively, to their health levels. The paper presents an initial analysis which will later be expanded on the basis of the patterns described here. The factors discussed include mothers' beliefs about the causes of the most important childhood diseases, in terms of morbidity and mortality; the actions taken in response to children experiencing these important diseases; mothers' awareness of what health services are available and reasons for choosing each type; and the role that social networks play in determining management of episodes of child sickness.

### **'Health of the urban poor' study**

This study was co-ordinated by the Institute of Southeast Asian Studies, Singapore, with Ford Foundation funding, and implemented in Indonesia by the Research Centre of Atma Jaya University, Jakarta. A similar study was conducted simultaneously in Manila by De La Salle University. The study objectives included documenting the health levels, health-related beliefs, and health-seeking behaviours of this increasingly important urban subgroup. This was to be set in the broader context of the social environment with the intention of identifying more effective approaches to the delivery of health services to such communities. A variety of qualitative approaches, including participant observation, focus group sessions, and in-depth interviews, were used in conjunction with surveys of the study households and selected health service providers. A full description of the study and its findings is in Tampubolon and Surjadi, 1988.

The study area was part of the the subdistrict of West Pademangan in north Jakarta near the Tanjung Priok docks and the Ancol harbourside amusement park. In the 1950s the area was mostly swamps and fish ponds many of which have gradually been dredged and filled in to form housing land. Conspicuous in the area are the houses built over the ever-present ponds, often linked by rickety wooden or bamboo bridges. This area floods regularly during the wet season, and is subject to fires during the dry season. In 1980 the infant mortality rate for the wider area of North Jakarta, where many of the poor reside, was estimated at 120 per 1,000 live births (Surjadi, 1988:12), compared to 80 per 1,000 for Jakarta as a whole at that time (Streatfield and Larson, 1987:7).

The neighbourhood unit (*Rukun Warga*, RW11) studied had a population of 4,884 living in an area of 16.5 hectares (ha.), of which half was leased for housing, one quarter was ponds, and the rest other land. The population density of 300 persons per ha. (or 600 per ha. of housing land) was very high for single or double storey housing. For a detailed description of local government organizational structure in Jakarta see Karamoy and Dias (1986:197). The neighbourhood unit, RW11, had a range of health facilities including one doctor in private practice, a nurse-midwife in private practice, six traditional healers of various kinds, 40 Women's Welfare Group volunteers (not all of whom were active), and one Integrated Health Post (*Posyandu*). In nearby neighbourhood units within the same



West Pademangan subdistrict (pop. 51,000 in an area of 226 ha.) there were two public health centres, two maternity clinics, one private clinic, and one Family Planning officer. The quality of the houses varied but they were generally made of wood with tin or tile roofs, and poorly ventilated with few windows. They were small, some averaging as little as two square metres of floor per person, with half the houses having only one or two rooms. Half the respondents owned their houses, though the land was leased from the Government. It was a little surprising that some of the households were quite well-off, their homes made of brick and tile, with substantial household incomes. Many of the inhabitants had lived in the area for many years (59 per cent more than five years) and clearly did not regard the area as a 'staging place' until something more permanent became available elsewhere. While only about one in 20 had arrived in the area during the past year, the inhabitants were predominantly from outside Jakarta, only one in four being born there. About one in three had come from Central Java, one quarter from West Java, one in eight from East Java, and the rest from other islands.

The economic condition of the majority of the inhabitants was poor. The average income was Rupiah 125,850 (US\$75) per month for a household of five people (equivalent to US\$180 per person per year, about one third the national average). Average expenditure, mainly on food (up to 65 per cent), drinking water, rent, transport, education and medical costs, was Rp.122,500 per month leaving little in reserve. Almost all respondents' husbands did some kind of work, usually labouring (30 per cent), or lower-level employment in Government or private enterprise (25 per cent). The remainder were street hawkers, drivers, soldiers, craftsmen, etc. Many of these men did not, however, work full-time. Among the 613 respondents (ever-married women with children under five years) education levels were low with only one quarter proceeding beyond primary school. Only 13 per cent of these young women (average age 28 years) worked for cash, and this was usually in a small streetstall (*warung*) or in the nearby Ancol amusement park.

As mentioned above, the environment was not conducive to good health because of crowding and the lack of clean water supply, sanitation, and rubbish disposal facilities. As the area is beside the sea, well water is saline and thus undrinkable. Almost all households (98.4 per cent) purchase clean water for drinking from sellers at a cost of Rp.150 for 25 litres. As a result many households spend up to Rp.30,000 per month, about three to five times the average expenditure of households which are connected to the city piped water supply. About half the households (usually the better-off) have their own toilet, sometimes a water-seal type, sometimes simply emptying straight into the ponds. Another 17 per cent share with other families, while 23 per cent use one of the eight public toilets. The remaining 7 per cent use the ponds or drains. Although most of the children have access to a toilet, only about half of the children use one, the others preferring the houseyards or nearby ponds or drains. At the time of the study there were very few public facilities for disposing of rubbish, thus two out of three families simply throw rubbish into the ponds which often appear to be solid from a total cover of floating refuse. Apart from the 15 per cent who use public bins, the remainder dump their rubbish in other public places such as by the railway line which borders the community. Further detail is available in Tampubolon and Surjadi (1988).

The above description indicates that while conditions are less favourable than in many parts of Jakarta, they are rather better than in the recent past (see Pananek, 1975).



# Findings

Before health beliefs and health-seeking behaviour are examined, the findings of the morbidity survey and clinical assessment will be presented to give an indication of the health condition of the study children. Respondents were asked about which symptoms or illnesses their preschool children had experienced during the past twelve months; responses were recorded in three-month intervals. They were also asked specifically about symptoms or illnesses during the two weeks before the survey. No symptom check list was used. The clinical assessment was carried out in the community by a team of three medical doctors and a nutritionist. The results of the survey indicate very high levels of respiratory infection, fever, and diarrhoea, and a substantial number of children with skin complaints (see Table 1). Reporting of parasites (worms) suggested very low levels, though the clinical assessment indicated almost half the children had some infestation.

**Table 1**  
**Illnesses and symptoms experienced by children during the previous twelve months, and previous two weeks**

Type of illness	Per cent experiencing during past	
	12 months	2 weeks.
Fever	75.9	10.4
Respiratory:		25.7
Cough	62.5	
Cold	56.0	
Diarrhoea	34.9	6.2
Skin disease	12.1	9.8
Other diseases:		3.3
Eye	1.0	
Parasites	0.8	
Not specified	11.7	
N	613	

The patterns in Table 1 support findings from other studies such as the 1986 Indonesian Household Health Survey (Budiarto *et al.*, 1987) that respiratory infections and diarrhoeal diseases are the major serious health problems, and skin diseases and parasites the most common non-serious conditions among Indonesian children. Budiarto found that during the month before the survey about 41 per cent of children under five had experienced an acute respiratory infection, 12 per cent experienced diarrhoea, and 14 per cent had a skin infection (Budiarto *et al.*, 1987:33). Direct comparison of the different surveys is complicated by the different reference periods. For long-duration conditions such as skin and some respiratory infections this is less of a problem, but with typically short-duration infections, prevalence levels are quite sensitive to the reference period. The clinical assessment in the present study confirmed that respiratory infections were very common with prevalence of 48.8 per cent. Also 41 per cent of the children had a skin disease, and 42.5 per cent had parasites of some kind (usually *Ascaris*, with some *Trichuris*). Interestingly, no children were identified as having diarrhoea, though this implies a selection bias whereby mothers did not bring children to be assessed if they were suffering from diarrhoea. Among the 21 child deaths which had occurred to respondents during the previous five years, the

reported causes followed the above pattern. They included asthma, tuberculosis, fever-cough-cold, fever-convulsions, haemorrhage, dengue fever, 'measles which did not come out', vomiting-diarrhoea, plus some birth related problems and an accidental fall. This pattern of high proportions of fever and diarrhoeal deaths is very similar to that noted in Jakarta in 1985 by Surjadi (1988:12), and, incidentally, in a similar study in a Lahore (Pakistan) slum by Shah and Anwar (1986:94).

The nutritional status of the 786 under-five children weighed matched closely the level for all Jakarta as determined in 1987 by the Central Bureau of Statistics. The proportion of children normally nourished (81 per cent or more of Harvard weight-for-age standard) was 57.0 per cent compared to 56.9 per cent for Jakarta as a whole (CBS, 1987:19). The proportions severely malnourished (60 per cent or less weight for age) were less than two per cent in both studies.

**Beliefs about causes of major conditions**

In the consideration of the role of social and other factors in influencing health levels, it may reasonably be expected that individuals' health-seeking behaviour might be determined by their perceptions of the causes of disease. The following data reveal, however, that the range of beliefs respondents held about the major childhood illnesses appeared to be generally consistent with modern medical aetiological understanding. Further consideration of the qualitative information suggested that there may be an alternative interpretation of some reasons. There was a tendency, though, to understate the importance of environmental contamination as a factor in diarrhoeal disease and parasitic infestation.

**Table 2**  
**Beliefs about causes of common diseases affecting children under five years (%)**

Cause	Respir. disease	Gastro- intest.	Fever	Skin disease	Other disease
Wrong food/drink	40.6	48.3	13.0	6.7	30.4
Weather change	59.4	29.3	60.0	8.3	21.7
Exhaustion	4.3	0	6.7	33.3	0
Environment	4.0	3.4	4.4	0	13.0
Spiritual- religious	0.3	5.2	5.2	30.6	4.3
Other reasons	1.3	3.4	7.0	0	13.0
Don't know	9.8	21.6	16.3	1.5	26.1
N	326	116	272	36	23

For respiratory and diarrhoeal diseases and fevers the most commonly ascribed causes were partly due to the inappropriate behaviour of the individual (or of parents), namely consumption of 'wrong' food or drink, and partly due to forces beyond individual control, such as sudden changes in the weather (Table 2). Quite different causes, though still reflecting individual behaviour (exhaustion) or external forces (spiritual-religious), were associated with skin conditions.



The respondent's concept of 'wrong' food or drink is not always clear but certainly includes substances which may be contaminated in the modern medical sense (e.g. by bacteria), streetstall foods or packet ices for example. The term also includes inappropriate types of food such as peppermint, *krupuk* (prawn crackers), and sour or spicy foods. The concept of 'inappropriate' foods and drinks also derives from the widespread acceptance of the almost universal 'hot-cold' dichotomy whereby certain foods are generally recognized to contribute excess 'heat' or 'cold' (in a cultural or metaphysical rather than thermal sense) to the body resulting in an imbalance which manifests itself as illness. The response is to restore the proper balance by prescribing a substance with the opposite property, e.g. to 'cool' a 'heated' child. This kind of 'hot-cold' reasoning probably has its origins in the humoral medicine of the Greeks which subsequently spread through much of the globe (Manderson, 1987:329-330), though it is also remarkably consistent with the much older Yin-Yang philosophy of ancient China (Logan, 1977:488). While it has recently been argued that this humoral system is not a simple dichotomy but a flexible continuum (Foster, 1984), nevertheless the emphasis on restoration of balance appears to underlie the curative health behaviour of many of the respondents in this study.

The behaviours related to weather include sleeping in front of an electric fan, not bathing when sweaty, bathing in warm water, going out in rain, playing outside the house at *Magrib* (sunset prayer time), or simply catching cold (*masuk angin*, meaning 'wind' entering the body). This concept is also derived from the humoral system whereby the 'wind' (like 'heat') in the body must be kept in proper balance, an imbalance resulting in illness. Attribution of ill health to the environment was of some interest considering the visibly hazardous living conditions. A small number of respondents indicated that risk behaviours include the child playing in the gutters or on dirty floors, or eating foods on which flies have previously settled. There seemed to be little recognition of the link between children defaecating around the houseyard (though admittedly this is usually cleaned up) and the high prevalence of intestinal parasites. The spiritual-religious causes include 'my child died because she had come close to the spirit of her dead uncle', 'my child's death was predestined – God's will'. The idea that certain places may be spiritually dangerous is also manifested during pregnancy when women are careful not to go about at dusk, nor to go out to the bathing place in the middle of the day. For adults these causes include failure to fulfil religious obligations such as praying regularly.

These categories of cause may be set in a context where Javanese people are said to follow a system of cause classification similar to Foster's 'personalistic' and 'naturalistic' dichotomy (1976). In her study of health beliefs in rural Central Java, Kasniyah (1985) explains that the 'personalistic' view holds that sickness is caused by an agent which may or may not be a person. For example, it may be caused by a person capable of 'black magic', or non-person agents including ghosts, ancestors, or evil spirits. It may also include supernatural forces such as gods: see Rienks, 1982 for a more detailed discussion of these causes. The 'naturalistic' view considers that no causative agent is involved, rather that sickness is the result of natural events occurring without external influence. In addition, sickness can result from conditions such as cold, heat, wind, damp air, and an imbalance among constituents in the body (Kasniyah, 1985:73). Kasniyah implies that different sections of the population may subscribe more to one of the two views described than the other. For the major infectious diseases examined here, it is clear that the naturalistic view holds. For the less serious conditions like skin disease, the personalistic view of an external

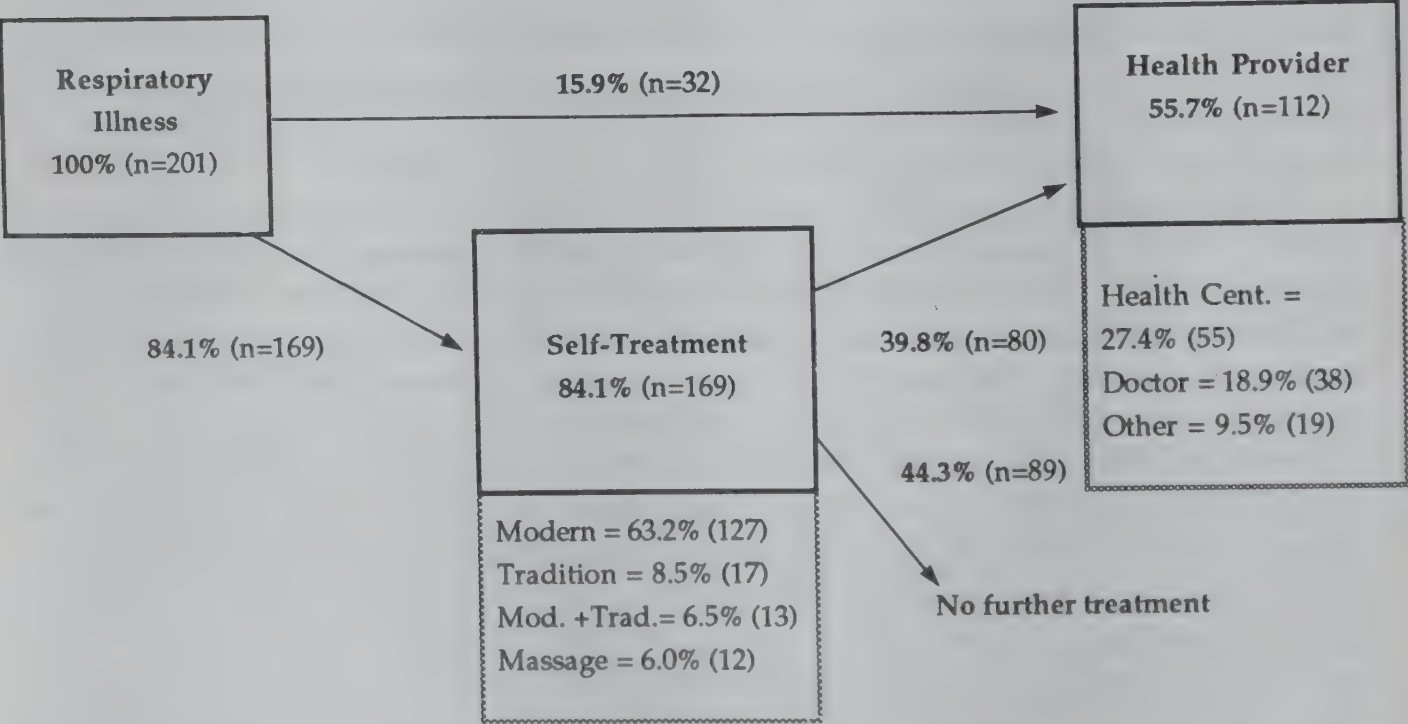
(spiritual) agent at work is more prominent. A related belief is that illness can be caused through the carelessness of an individual. If the illness is believed to have been caused by one's own carelessness, such as taking the wrong food, then a modern healer (e.g. doctor) is most appropriate. On the other hand, for illnesses caused through no fault of one's own, e.g. being victim of black magic, then the patient should be taken to a traditional healer or a 'wise man'. A detailed description of the variety of specialist traditional healers (*dukun*) and their methods is given in Geertz (1977:146-154).

It may be concluded, then, that the respiratory and diarrhoeal diseases and fevers so prevalent in this community are generally regarded as having 'naturalistic' causes for which the appropriate treatment includes efforts to restore internal 'heat' balance, but may also include use of modern medicines. This is discussed further in the next section.

Management of major illnesses

The findings presented above indicate that respiratory and diarrhoeal illnesses and fevers, are very common among the children of this community. In this section findings are presented illustrating how parents respond to these illnesses. The patterns of illness management for respiratory and diarrhoeal diseases are remarkably similar (see Figures 1 and 2). In both cases about five out of six respondents tried self-treatment as the first step. This self-treatment was usually based on obtaining modern medicines from a local streetstall or shop. Respiratory infections can vary greatly in degree of severity, often depending on whether they occur in the upper or lower respiratory tract. They may range from a cough, a cold, influenza, asthma, to more serious illnesses such as measles, diphtheria, whooping cough, bronchitis, pneumonia. Indeed any illness is considered 'respiratory' if it is associated with breathing difficulties, and often some additional signs such as blue lips, coughing blood, nose bleeding, loss of appetite, and mild body fever.

Figure 1.



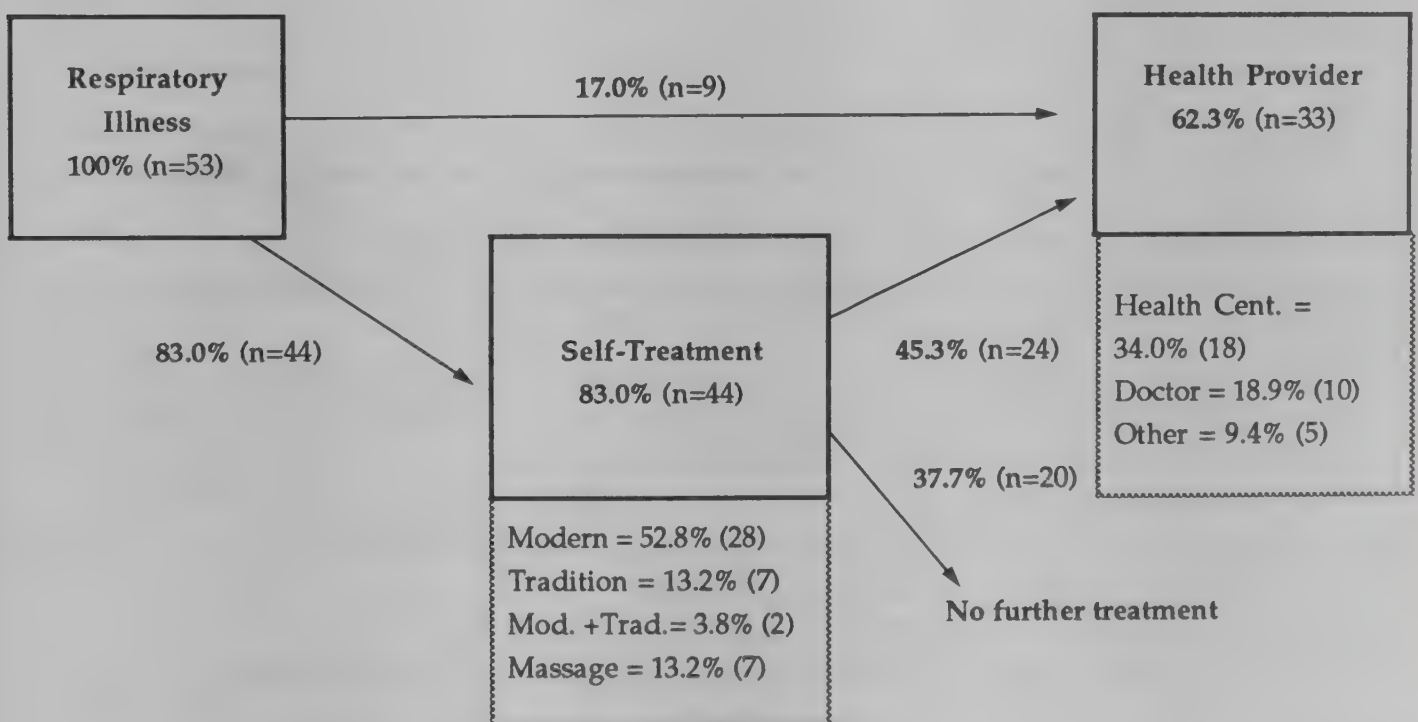


In the case of respiratory illnesses the modern medicines preferred included Bodrexin (aspirin), Inzana (aspirin), Obat Sumang (Acetaminophen or paracetamol), and Laserin (herbal) Cough Syrup 'if there is sufficient money'. The traditional medicines used include an ointment made of red onions; grated red onion mixed with cooking oil and kerosene and rubbed on the skin (usually on the back) to raise body temperature and expel 'wind'; coconut cooking oil mixed with vinegar; and scraping the skin on the back with a coin dipped in *cajaput* or whitewood oil (*minyak kayu putih*) to expel 'wind' and refresh the body. The explanation of the use of red onions derives from the widespread belief that many respiratory symptoms are caused by 'wind' entering (*masuk angin*) and 'cooling' the body. Thus it is most appropriate to apply externally a 'warming' or 'heating' agent and red onions perform this function. As might be expected at such a time, eating ice is forbidden.

The situation can be complicated when high fever is involved. When the body is hot, i.e. containing excessive 'heat', the appropriate response is to apply a 'cooling' substance such as a compress made with ice or with *asem Jawa* (oil of the acid fruit of the tamarind tree, *Tamarindus indica*). Paradoxically, for a light fever, the warming properties of a red onion rub may sometimes be applied.

For cases of diarrhoeal disease the respondents usually used a locally available antidiarrhoeal medicine (Koniprom) or oral rehydration salts. The most widely used traditional medicines were grated turmeric mixed with lime juice, rubbing the child's body with powdered red onion mixed with lemon juice and whitewood oil, and red onion mixed with a little vegetable oil, or rubbing with *asem Jawa*. *Mapo* (mixture of lime juice with honey and egg yolk) may also be used as a general body-strengthening tonic. As implied above, there is a belief that some diarrhoeas too are caused by 'cooling' of the body (*masuk angin*) and therefore require 'heating' treatment with red onion.

Figure 2



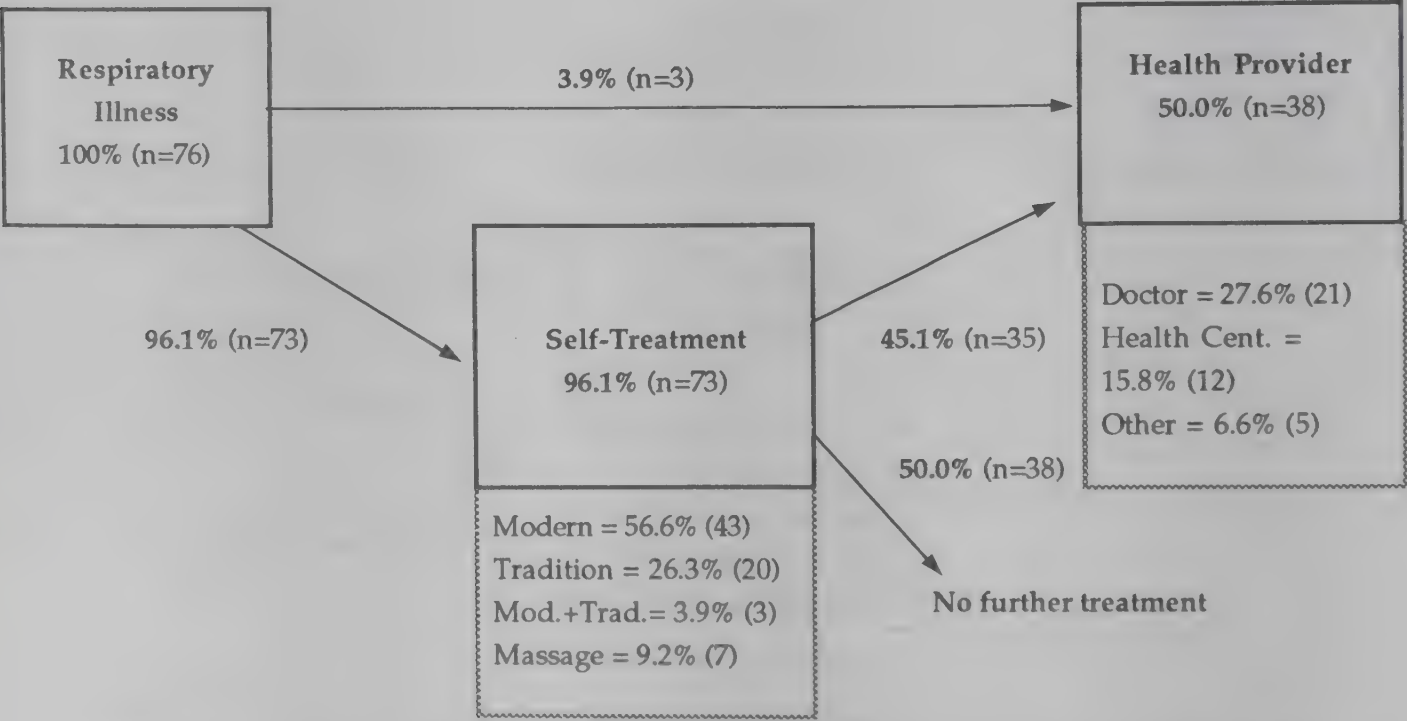
As in most transitional societies, diarrhoea is not regarded as a single condition but rather as a range of conditions differing in symptoms and perceived cause. One type is *indah* (watery stools containing bright 'chili' seeds five or six times a day) which is

associated with the development of new mental and physical capacities in infants. Generally it is believed not to require treatment. Similarly *melketek* (like *indah* but sometimes with fever) is associated with normal development and may not require treatment. One type caused by 'cooling' of the body is *mencret-mencret* (yellow, watery stools three to five times per day). Other diarrhoeal conditions which can be more serious include: *muntaber* (vomiting, continuous, often mucous diarrhoea, and fever); *mejen* (like *mencret* but with mucus and 'colicky' stomach, also known as *berak ingus* and *isiumbal*. Could be dysentery, though that is often called *disentri*); *berak-berak* (dense, muddy coloured, bad smelling stools: possibly giardiasis); and *diare* (frequent – half hourly – defaecation, very watery stools, probably cholera. Term not known to all respondents). A child with diarrhoea was also forbidden to eat spicy, sweet or sour foods, oils, fruits such as bananas, papaya, pineapple, oranges, and cold things like *es mambo* (ice blocks).

For both respiratory and diarrhoeal diseases about half of those who tried self-treatment as the first step were not able to cure the child and so went to the formal health service as a second step. In total then, between a half and two-thirds went to the formal health service though in most cases as a second step in the management of the illness. This sequence of steps is commonly referred to as following a 'hierarchy of curative resort' (Romanucci-Ross, 1977:481). The formal health provider most commonly visited was the Public Health Centre, followed by the private doctor.

The management of fevers, which have been shown to be extremely common, differed in that virtually all respondents (96.1 per cent) tried self treatment first (see Figure 3). Again though, about half then went on to the formal health service as a second management stage. Self-treatment was dominated by the use of modern medicines which, as for respiratory illnesses, were basically aspirin-type drugs which reduce body temperature and provide pain relief.

Figure 3.



For respiratory and diarrhoeal diseases the question arises why in one in six cases the parents take the child directly to the modern health provider rather than using self-



treatment first. It may be expected that these are the more serious cases, but data are not available to resolve this issue. Alternatively it may be the economically better-off families who take this course. This does not seem to have been the case as the better-off were equally as likely as the rest to use self-treatment.

It is surprising how little use is apparently made of traditional healers in the second stage of treatment even though there were at least six such persons living in the study community. This was the case not only for curative care but also for preventive actions related to childbirth, where a substantial proportion of women had visited a traditional midwife for confirmation of their pregnancy, but then turned to the modern health sector for antenatal care and delivery.

Factors underlying management decisions

There are a number of other considerations in the selection of health provider, as indicated in Table 3. These are the health services chosen, in most cases, after self-treatment had not resulted in recovery.

Table 3  
Reasons for choosing specific type of health provider (%)

Reason:	Health centre	Doctor's Practice	Nurse's practice	Hospital	Traditional healer	Health cadre
Cheap	74.5	10.8	15.4	8.0	3.8	20.0
Trust	5.4	46.7	7.7	50.0	27.6	0
Custom	9.8	31.6	35.9	12.0	41.9	0
Quick	1.0	10.0	9.0	24.0	0.0	40.0
Close by	18.8	3.4	30.8	4.0	18.1	20.0
Other	4.9	11.1	6.4	4.0	13.3	0
N	388	351	156	100	105	10

The various health providers have certain attributes which underlie their selection by parents of sick children. These attributes may be low cost, confidence in curative power of available medicines or proximity. The Public Health Centre was most often selected because it was cheap; the doctor's private practice because of trust in the doctor's curative power and because it was their custom or habit to go there; the nurse's private practice was used because of habit and it was conveniently close; while the hospital was chosen because of trust in the curative facilities available there; traditional healers were selected mainly through habit, and trust in their powers to treat certain conditions. These reasons accord fairly well with the actual services offered by the various health providers. Indeed questioning of respondents on what particular preventive and curative services were available at each service point revealed quite accurate knowledge about those service points in the immediate vicinity.

There can be no question that financial considerations play an important role in the respondents' management decisions. The medicines available from local streetstalls often cost only a few hundred Rupiah (around US\$0.20). This is similar to the administration fee charged by Public Health Centres, though prescribed medicines may add a great deal

more to the total cost, quite apart from the often lengthy waiting times involved. One respondent said that she preferred to pay Rp.3,000 to a traditional healer rather than wait in the Health Centre queue. It was widely held to be important to take a sick child as quickly as possible to a doctor's private practice, but finance is often the limiting factor as one mother pointed out: 'the quicker medicine is given the better, but money is often insufficient'. As the financial issue can be important, with a visit to a doctor frequently costing between Rp.7,000 and 16,000 (US\$4-10 or three days average wage), the mother will often wait until her husband returns home after work before seeking treatment from the health service. In the meantime she may use streetstall medicine for self-treatment.

The financial burden was also the main reason for delaying attending the hospitals in the region. While hospital treatment is not necessarily expensive, the fact is that parents often do not take their child there until they have tried all the alternatives (and the child may by then be very sick). The actual costs recalled by respondents were high, from Rp.46,000 to 445,000 (US\$28-270). As this may amount to several months' gross wages for many, they are understandably reluctant to take a child to hospital although many expressed the view that hospitals, more than other health providers, have the capacity to cure serious illnesses. A relevant aspect of the social environment in this community is that, while many residents have lived there for a number of years, the support network from which money may be borrowed appears to be more circumscribed than it might be in a rural area. Less than one third of respondents had borrowed money when their child had been ill, and then more often from a relative (20.2 per cent) rather than a neighbour (14.8 per cent). Despite this limitation, there were occasions when respondents were prepared to pay out burdensome amounts of money to obtain high-quality service.

One example was the striking pattern whereby pregnant women were much more likely to pay over Rp.50,000 for a 'package' of antenatal, delivery, and postnatal care from the local nurse in her private practice than to visit the same nurse in the Public Health Centre at vastly lower cost. Forty two per cent of women obtained antenatal care this way, and 72 per cent delivered in the nurse-midwife's home. The reason given was that the private practice 'package' ensured priority to the pregnant woman for delivery assistance regardless of the time of day she went into labour. She could be certain of admission into the four-bed delivery room at the nurse's house any time of the day or night, meals would be provided, and she would get advice and assistance on child-care matters for up to 40 days after delivery. A feature of Public Health Centres is that they are open only in the mornings six days a week, and no services are available at other times, thus impelling mothers to make use of self-treatment or alternative services if their child is sick at other times.

As already implied, beliefs about cause of the illness can also play an important role in determining action. In regard to fever, the in-depth interviews elucidated a belief which is apparently widespread that a child with fever should not be taken out of the house until the fever 'breaks'. The concern is that a child with fever is unusually vulnerable to 'cold wind' (*masuk angin*) especially from wind or rain, and such exposure could greatly worsen the child's condition. The belief applies particularly to children with measles, a situation described also among the Chinese of Taiwan (Kleinman, 1980:88) and Hong Kong (Topley, 1970:425). Such a belief clearly has major implications for management of children with fever. This implied pattern of management must be seen in the context of children having frequent respiratory infections and fevers, in most cases recovering without major medical intervention. Just occasionally the illness is much more serious than usual and requires



immediate professional treatment. It is when these more serious cases do not receive appropriate attention that the child becomes very sick, possibly fatally. A case study of the death of a three-year-old child illustrates the process:

This second child of a 27-year-old mother had apparently rarely been sick, but she came down with a fever on a Thursday evening in January 1988. In addition to a very high temperature, her tongue and lips were split and she had a slight cough. The mother gave her the traditional medicine *mapo*. Possibly as her husband was absent, she used only this self-treatment until Sunday. As the fever had still not abated and all other health providers were closed, she took the child to a local doctor's private practice. He gave her a powdered medicine (name unknown to Respondent) and said to return if the fever persisted. The mother was annoyed that the doctor would not give her any information about the nature of the illness, e.g. if it was measles or dengue fever, though she suspected the former, so she threw the medicine away.

On Monday morning around 10 a.m. the child had her first convulsion. The mother took the child to an old lady (traditional healer of a kind) in the neighbourhood. The old lady placed some 'holy water' on the child's upturned eyes whereupon they returned to their normal position. The mother sought no other help but took the child home. At one p.m. the child had a second convulsion and died.

This case reflects the dilemma that may face parents of a sick child. This mother had difficulty determining how serious her daughter's illness was. She believed that the doctor had access to powerful effective medicines but she did not make use of his medicine because of frustration at the communication gap between doctor and patient. Even on Monday when the child's condition had clearly worsened, she declined to make use of the modern health service (e.g. the Public Health Centre) preferring the reassuring ministrations of the traditional healer.

As a postscript, the mother believed that her child died of measles against which she had never been immunized. When asked if she planned to have her son immunized she replied that she would not as she believed it preferable for a child to have measles when young (for the 'white blood to come out') than for the disease to manifest itself in a more dangerous form in later life. She appeared not to recognize the irony that for her daughter the disease had been as dangerous as it could possibly be. This belief that it is not desirable to immunize against measles but rather let it come out leaving the child with permanent natural immunity has also been described in other societies (see Topley, 1970:425).

## Conclusion

Initially it is tempting to assume that the health problems of the urban poor are largely due to the environmental conditions, overcrowding, poor sanitation, etc. combined with limited financial resources restricting access to high-quality care. The findings of this study suggest that while environmental conditions are certainly conducive to high levels of transmission of respiratory, diarrhoeal, skin, and parasitic diseases among the children, appropriate curative care is not out of reach of most households. In general, access to modern health services is not difficult, experiences with modern health service staff have

been broadly favourable, and there is a widespread acceptance that the medicines provided are effective.

In conditions where a large proportion of the children experience numerous episodes of these major infectious diseases each year it is important that parents can distinguish between trivial and serious episodes and take appropriate curative action. The striking pattern among these respondents is that the 'hierarchy of curative resort' almost invariably involves self-treatment for a considerable time apparently regardless of the degree of severity of the illness. Again, it might be assumed that self-treatment is the preferred first stage owing to the relatively low cost, but a deeper analysis suggests that it is because of long-held beliefs about the consumption of inappropriate foods or drinks upsetting the 'hot-cold' balance in the body, resulting in illness. This imbalance can also be induced by exposure to certain environmental conditions, especially cold or wet weather. As a consequence of belief in this 'humoral' system, treatment often concentrates initially on withdrawing the offending agent, e.g. the 'heating' or 'cooling' food or drink, together with some symptomatic relief with modern analgesics. A further important precaution is to keep the child in the house to reduce the risk of further disturbance of the 'hot-cold' balance. Even where treatment choice is not based on consideration of internal 'heat' balance, there is a very marked tendency to treat all but the most serious cases with local streetstall medicines.

The significance of the delay resulting from almost always resorting to self-treatment for several days before seeking higher-level professional assistance should not be underestimated. This process must be seen as part of an indigenous 'social construction' of how child illnesses are caused and should be treated, but it means that the small proportion of potentially serious disease episodes may advance to a critical and irreversible stage before receiving the appropriate treatment.

To summarize, the most significant social or cultural factors affecting health levels among these urban poor children are the beliefs about causation of the major infectious diseases which determine the choice of appropriate treatments. This situation is complemented by economic pressures which contribute to the unfavourable environmental conditions, and the restricted social support network which limits borrowing potential to obtain health care in hospitals.

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## Chapter 50

# Cultural barriers to participating in cancer screening programs: a case study of breast and cervical screening among older Macedonian and Italian women living in Victoria, Australia

Sandra M. Gifford

### Introduction

In the developed countries, policies and services for population screening are becoming common strategies for secondary prevention of breast and cervical cancer. In countries with relatively homogeneous populations such as Sweden, participation rates are high and screening services have been successful in reducing mortality due to these two diseases (Hakama, 1982; Tabar *et al.*, 1985). However, in other countries including the United States, Great Britain and Australia, participation rates, particularly among older women, are low thus reducing the effectiveness of population-based approaches (Parkin *et al.*, 1981; Maclean *et al.*, 1984; Eardley *et al.*, 1985).

The development and implementation of population screening strategies appears to be particularly problematic in multicultural societies and many factors may contribute to low utilization among women. In an attempt to increase 'compliance', health service research has focused upon identifying barriers to participation. Much of this research has explored attitudes and health beliefs with the aim of developing and improving education strategies or has identified social and structural factors with the aim of improving access (Celentano *et al.*, 1982; Eardley *et al.*, 1985). Few studies have explored more generally the relationship between cultural concepts of health, cancer, reproduction and health service usage. Furthermore, little research has addressed social and cultural perceptions of the potential 'risks' to women who participate in such programs.

This paper discusses some preliminary findings of a study designed to explore factors associated with non-participation in cervical and breast cancer screening programs among older (45 to 60 years) Macedonian and Italian women.

The study was conducted in the city of Melbourne, Australia. The data presented in this paper are derived from the first stage of the study which consisted of a series of qualitative, tape recorded interviews with 40 women: 20 Macedonian and 20 Italian. The second stage of the study consisted of a structured questionnaire administered to 300 women: 150 Macedonian and 150 Italian women. The results of the second stage are not presented in this paper as data analysis has not been completed.

This paper begins by discussing the background to the study, the design and methods used. Second, it discusses a series of beliefs about menopause, health and cancer which may influence women's initial and continuing participation in screening programs. Third, it presents a set of social and structural factors that are associated with access to these services. Finally, there is discussion of some of the implications of cultural beliefs and social



and structural factors to the development and implementation of screening policies and services.

## Background and study design

Recent policy initiatives in women's health in Australia have highlighted the need for a more comprehensive approach to reducing the mortality due to cervical and breast cancer. As a result, the Commonwealth government has allocated additional funds to establish pilot mammography screening programs and to increase women's utilization of Papanicolaou smear services. The Public Health committee of the National Health and Medical Research Council has also given high priority to research which identifies factors associated with women's use of and access to these services.

Special emphasis has been placed upon studies which address the multicultural context of Australia's population. The available statistics concerning mortality due to cervical cancer in Australia show that older women are proportionally over-represented. Furthermore, data available about utilization of Pap smear services show that older women of non-English speaking backgrounds are under-represented (Holman *et al.*, 1981; Mitchell and Medley, 1987; Mitchell *et al.*, 1987). The study discussed in this paper was designed to explore reasons why older women from non-English speaking backgrounds are under-represented in their utilization of Pap smear services and what factors need to be taken into account in the development of mammography screening services.

The study was designed in two stages. The first stage consisted of qualitative in-depth interviews with women in their homes. Interviews were tape recorded, conducted in Italian or Macedonian and then fully transcribed into English. The interviews were designed to explore cultural understandings of cancer, reproduction, menopause and concepts of health.

Stage two consisted of a structured questionnaire which was constructed from the understandings gained from the qualitative interviews. The questionnaire explored factors associated with health service usage. Participants for both stages of the study were recruited from community groups including clubs and churches rather than from health services. The rationale behind this strategy was to include in the study women who may not be current users of health services.

## Cultural beliefs about health and menopause

Expectations and experiences of health during and after the menopause may be associated with women's willingness to participate in screening programs. Both Macedonian and Italian women interviewed in this study viewed the time both during and after menopause as a time of diminished health. This diminished state of health is closely tied to beliefs about the function of blood during the reproductive years and the problems that arise when a woman no longer has a period. Women explained that without the monthly flow of blood, one weakens and therefore cannot be healthy. For example, Macedonian women explained that during the time of the menopause, the blood slows down, it cannot run as quickly and this weakens the body. A woman becomes vulnerable to a number of different disorders including thickening of the blood which can be caused from eating food that is too rich, sugar in the blood or too much blood which can result in high blood pressure. Women explained that doctors treat these disorders as high blood cholesterol, diabetes and high blood pressure respectively.

Both Italian and Macedonian women pointed out that some of the most common disorders of menopause such as hot flushes, headaches and 'nerves' were caused by having either too much blood or blood that was too strong. These problems were seen to be particularly frequent during the menopause when the body may still be producing blood even though menstruation has ceased.

Finally, Macedonian women explained that when one is no longer able to conceive, semen deposited in the vagina will 'turn lumpy and will need to be cleaned out'. Because there is no longer a monthly flow of blood to cleanse the uterus, intercourse after the menopause should be avoided as it can lead to health problems.

Although these beliefs are far more complex than I have reported here, they have several implications for women's use of cervical and breast cancer screening services. First, many women indicated that they expected their health to diminish with the onset of menopause and this was seen as a normal part of aging. Thus, to some extent, this new health status may be a cultural norm. In fact, the discourse about health problems may reflect and help to reinforce a woman's changed status and identity as an older woman, a grandmother and one whose children are now grown. Thus, health expectations may well differ from those of Anglo-Australian women who seek to maintain or improve their health as they age.

Second, women are no longer seeking medical care for pregnancy or other reproductive problems. Both Macedonian and Italian women expressed the belief that after the menopause, nothing could go wrong 'down there'. They therefore saw no reason to visit a doctor for a vaginal or breast examination. Some women also explained that because they were no longer menstruating, it would be difficult for them to justify to their husbands the need for an examination of their private parts.

## Beliefs about cancer

Beliefs about the aetiology, prognosis and prevention of cancer are central to women's utilization of screening services, particularly as these beliefs may be in conflict with the beliefs and assumptions underlying the rationale for population-based screening programs. Population screening involves screening 'healthy' people in order to detect those who either may be at risk of developing a disease or may already have an asymptomatic condition. It is important to note that participants are not 'ill' at the time of the screening. Screening, then, separates those who probably do not have a disease from those who need further follow-up and investigation. Thus, the process is not diagnostic and is therefore qualitatively different from the majority of medical encounters.

One of the basic principles for implementing a screening program is that there must be an appropriate treatment for those in whom a disease is detected. Thus, if it is detected and treated in the early stages, life can be prolonged. However, one of the consequences is that a previously 'healthy' individual is suddenly faced with experiencing (and creating) a new illness state. Beliefs about the aetiology, prognosis and prevention of cancer have a direct bearing on how individuals and their families deal with these sudden changes.

Italian and Macedonian women held several sets of beliefs about the aetiology and prognosis of cancer. For example, Macedonian women held strong beliefs that 'catching cancer' was one's destiny and only God could save one from this disease. One woman explained: 'When evil comes, you can't keep the door closed. There's nothing you can do about it. You can't avoid it ... It's best if God saves you from catching cancer.'



Following from this is the belief that there is little one can do to treat the disease once diagnosed. As one woman explained, 'If you catch it, neither doctor nor medications can help ... Cancer can be cured only if you are lucky.'

A second belief shared by both groups of women is that 'fright' can both cause cancer and cause a person to die more rapidly from the disease. Many of the participants interviewed explained that if a woman was diagnosed with cancer, it would be better for her not to know. Instead, only the husband and sons should be told. As one woman explained, 'They (the doctors) wouldn't tell you if you have cancer, only your husband or your son, but not you. It's better that way. If they tell you, the only thing you can do is wait for your death. If they do (tell you), you die much quicker'.

Finally, many Macedonian women believed that talking or thinking about cancer could cause the disease. When asked about cancer, many of the women crossed themselves and continually made interjections such as 'May God never see it again'. Not only were women reluctant to speak about cancer but also they indicated that attending a screening program might well bring on the disease. Thus, speaking about, thinking about or attending a cancer screening program were seen to put a woman at risk of 'catching' the disease.

Specific beliefs about prognosis have a direct bearing on women's willingness to utilize screening services. Among both Italian and Macedonian women, beliefs about prognosis related to three different types of cancer, those that are benign, those that do not spread and those that multiply. Benign conditions are referred to as tumours, nuts, or pimples by Italian women and as 'wild flesh' by Macedonian women. A tumour or wild flesh is a condition that is precancerous. Both groups of women explained that these conditions could become cancerous if not removed from the body and that these were the easiest to cure.

The second type of cancer is one which does not spread. Italian women refer to these conditions as cancers without roots and Macedonian women describe these conditions as male cancers. Male cancers are characterized by their inability to multiply and can occur in both men and women. Both groups of women pointed out that these kinds of cancers can be cured.

The third type of cancer is one which spreads and both groups of women were of the opinion that these conditions were very difficult if not impossible to cure. Italian women described these conditions as having roots like a tree which spread through the blood. Macedonian women described these cancers as female because '...the female cancer multiplies, like when a woman gives birth, it grows bigger and bigger...it gives birth like a woman does, it fertilizes, it spreads through the veins very quickly and destroys you.'

Women tended to categorize these three types of cancer retrospectively. That is, they described whether a cancer was benign, with or without roots or male or female not at the time of diagnosis but rather, once the outcome was known. All women described a cancer as female or one with roots if the victim died as a result of the disease even if death occurred many years after initial diagnosis and treatment. Finally, both groups of women indicated that cancer in the uterus was more likely to be curable and therefore male or without roots while cancer in the breast was more likely to be female, to spread to other parts of the body, thus eventually leading to death.

### **Social and structural factors associated with utilization of screening:**

This section discusses some of the social and structural factors that may be associated with women's willingness to utilize breast and cervical cancer screening services. The

extent to which the following findings are generalized is uncertain as results from the quantitative part of the study are not yet available.

The type of health care provider was of major significance. Many of the women interviewed were attending a general practitioner on a regular basis for treatment of either high blood pressure, high blood cholesterol or diabetes; this was especially true of Italian women. However, many indicated that they would not necessarily feel comfortable seeing the same doctor for a breast or vaginal examination.

Both Italian and Macedonian women stated that they preferred a doctor who could speak to them in their native language. However, Macedonian women explained that they would not seek care from a male, Macedonian doctor because the community networks were too small. There was always the possibility of meeting the doctor at a wedding or other community function. This finding is particularly relevant because in the state of Victoria, there has been an emphasis placed on increasing the number of doctors from non-English-speaking backgrounds working within their own ethnic communities.

Finally, while some women expressed a clear preference for a woman practitioner, others said the sex of the doctor did not matter. However many women said that they would not feel comfortable having an examination performed by a young male practitioner who might be the same age as their sons. Most women expressed a clear preference for a doctor as opposed to a nurse or other health care provider.

Another area explored was women's preferences concerning venues for the delivery of services. The initial research shows that women tend to prefer the services of hospital-based women's health clinics as opposed to local community health centres or community general practitioners. This is because women are already familiar with hospital clinics as that is where they received much of their prenatal and postnatal care. Many had also seen specialists at these hospitals for other gynaecological problems. They therefore believed that hospitals were the places that were best able to deal with 'women's' problems. Moreover, women pointed out that hospitals are the only medical care facilities where the services of an interpreter can almost be guaranteed.

## Health service policy implications

The initial findings of this study as discussed above, suggest a number of strategies for increasing women's willingness to utilize screening services and for improving access to these services. These include sensitizing health care practitioners to cultural beliefs about health, menopause and the causes and prognosis of cancer; developing culturally appropriate health education programs for older women about health during and after the menopause; developing hospital-based clinics for older women which provide services for a range of conditions including diabetes, high blood pressure, and cancer; and increasing accessibility to interpreter services in community health centres and in general practices.

However, arising from this research are some more fundamental issues which have serious ethical implications. The philosophy and rationale for population-based screening rests upon culturally constructed concepts of health, illness and disease within cosmopolitan medicine. Among these is the belief that disease can exist in the absence of illness. Cancer, high blood pressure and diabetes lie hidden in a healthy individual. In many cases a person only comes to feel ill when the condition is detected and treated and it is often the treatment that causes the illness rather than the disease itself.

Thus, while screening for some diseases has clear benefits as is the case for cervical cancer (the benefits for breast cancer are not as clear), screening is not without its risks.



Ultimately, screening healthy people extends the reach of medicine to greater proportions of the population. It involves an expansion of medical surveillance and treatment for those found to be 'at risk'. Elsewhere I have shown how in the United States, doctors managing women at risk of breast cancer come to think about 'risk' as if it were a disease and in some cases treat 'risk' through prophylactic mastectomy for women without cancer (Gifford, 1986). Thus, screening has the very real potential of increasing the number of people who become 'ill' in the absence of disease.

How, then, do these general concerns about screening relate to the preliminary findings reported in this paper? While it may be relatively easy to apply our understanding of women's cultural beliefs about cancer to the development of strategies to improve utilization and access, the more difficult task is to ensure that these services do not cause further illness or distress. How do we reassure women that participation in screening will not 'cause' cancer? How do we develop culturally sensitive approaches for dealing with false positive and false negative results? How will women and their families be informed if there is a need for further diagnostic follow-up? How will a diagnosis of cancer be communicated to a woman?

In sum, the critical challenge emerging from this research is not so much one of improving utilization and access but rather of ensuring that screening services do in fact benefit participants and their families. In assessing such benefits it is essential to take into account criteria other than simple reductions in mortality. For if consideration is not given to the 'risks' of screening, then reducing cultural barriers to utilization and access may well result in increasing the burden of illness and lowering the health of participants of these services.

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## Chapter 51

# Social and behavioural factors affecting transmission and severity of measles infection

Peter Aaby

### Introduction

A discussion of the social, cultural and behavioural factors affecting morbidity-mortality patterns and the health transition must necessarily address the question of the biological mechanisms causing severe infection. Our understanding of these mechanisms will clearly affect the direction of socio-cultural investigations. Unless this understanding of the mechanisms of severe and fatal infection is correct, it is unlikely that socio-cultural studies will generate useful information for public health planning or development projects aiming at improving health. The present communication discusses the different explanations of severe measles infection and their consequences for the understanding of socio-cultural factors affecting health. With an estimated 2.1 million deaths annually in the developing countries, measles is one of the most deadly childhood infections, if not the most (Aaby, Clements and Cohen, 1987).

Variation in severity of infection has usually been understood as a result of care, treatment or host factors influencing the individual's immunological capacity; these latter factors would include malnutrition (Walsh, 1983), age at infection (Walsh, 1983; Reves, 1985), genetic susceptibility (Black *et al.*, 1977) and sex-linked immune differences. Malnutrition is no doubt the most widely accepted explanation of why infections which are today harmless in the industrialized world still kill many children in some parts of Africa, Asia and Latin America (Walsh, 1983; Morley, 1973). Young age at infection has also been considered a major determinant of the level of mortality. Thus, the decrease in case fatality rate (CFR) in the industrialized countries has been explained as a result of a presumed rise in the age at infection (Reves, 1985). The host factor approach is based on the premise that there is something distinctive about the individuals who contract severe or fatal infection. Specific disease interventions may therefore have a limited impact on survival. According to some analyses, children prevented from dying of measles are the 'weak' ones who presumably are more likely to die of other infections (Kasongo Project Team, 1981; Mosley, 1985).

Recent studies have found this approach inadequate for explaining the variation in acute measles mortality (Aaby, 1988a). Since intensive exposure increases severity (Aaby, Bukh *et al.*, 1984a), it has been suggested that the causes of severe infection may lie with the transmission of infection rather than in the host. Children prevented from dying of measles due to intensive exposure should not be more likely to die of other infections. Specific disease intervention may therefore have a strong impact on general survival (Aaby, Clements and Cohen, 1987).

The present paper discusses the explanatory potential and implications of these contrasting approaches to severe measles infection. Most observations are based on



longitudinal studies of measles infection in Guinea-Bissau and several other African countries. Furthermore, records from the infectious disease hospital in Copenhagen (Blegdamshospitalet) in the period 1915 to 1925 have been used to examine whether the experience from Africa also applies to the period in the industrialized countries when measles mortality was very much higher. The CFR for all ages in the hospital in Copenhagen was 13 per cent (284/2,208) in the period 1915-1925 (Aaby, 1988b).

### Variation in measles mortality

An adequate understanding of the epidemiology of severe measles should be able to account for major contrasts in mortality and to integrate otherwise disparate interpretations. The major variations in severity of measles may be described as follows:

**Geographical variation.** Measles mortality is higher in Africa than in Asia or Latin America (Aaby, 1988a). Within Africa, measles mortality is highest in West Africa (Aaby, 1988a), as is child mortality generally.

**Rural-urban differences.** Within developing countries, age-specific CFRs are higher in rural areas than in cities (Aaby, 1988a).

**Historical changes.** In the industrialized world, a major decline in measles mortality occurred at the beginning of this century (Reves, 1985). In England, where developments are best described, the decline took place between 1890 and 1940, just before the advent of antibiotics. At the turn of the century, several studies based on outbreak investigations and public registration found CFRs as high as 3-10 per cent (Aaby, Bukh *et al.*, 1986a). The decline in CFR to the present 1-2 deaths in 10,000 cases constitutes one of the most important epidemiological changes.

**Institutions and overcrowding.** When measles was severe in the industrialized world, several studies documented that measles was particularly severe in institutions grouping many susceptible individuals; e.g., orphanages, child institutions, emigrant passenger ships, military and refugee camps (Aaby, 1988a; Aaby, Bukh *et al.*, 1984a). Apparently, measles becomes more severe when several individuals become ill simultaneously. The same experience has been noted more recently in developing countries where several community studies have shown mortality to be higher in houses with multiple cases than in families with only a single case of measles (Aaby, 1988a).

**Age.** As in many other infections (Mims, 1976), the measles CFR shows a U-shaped curve, being most severe among the youngest children under two or three years of age, increasing again for young adults.

**Sex.** When measles was severe in the industrialized world, mortality was usually highest among males, and this has been considered the 'natural' situation (Babbott and Gordon, 1954). Few studies have reported their data by sex, but studies from Bangladesh (Bhuiya *et al.*, 1987), Tunisia (Monastiri, 1961), Gambia (McGregor, 1964) and Mali (Fargues and Nassour, 1988) have found higher mortality among females. This has been interpreted as a result of differential treatment of the two sexes (Bhuiya *et al.*, 1987).

### Host factors

Differences in traditional treatment or availability of medical care have probably had a relatively small role in determining the major variations. The CFR in the industrialized countries had fallen to a low level before medical science had effective interventions against the complications of measles. Only malnutrition and age at infection, usually considered the most important host factors (Walsh, 1983) will be discussed here.

### Malnutrition

Hospital studies have reported that malnourished children with low weight-for-age (w/a) at admission have a higher CFR than better nourished children (Aaby, 1988a). However, there are now several community studies from Bangladesh, India, Kenya, Gambia, Nigeria and Guinea-Bissau which have found no association between state of nutrition and severity of measles (Aaby, 1988a). Only one community study has reported higher mortality among malnourished children (Chen *et al.*, 1980). In this study from Bangladesh, 2,019 children aged 12-23 months were followed for two years. During this period, children with a weight for age below 65 per cent of standard had a measles mortality rate of 1.5 per cent (11/742) compared with 0.6 per cent (8/1,277) for children with a weight for age above 65 per cent ( $p=0.05$ ,  $\chi^2=3.7$ ). However, this comparison may be partly confounded because it is based on deaths in relation to the total population rather than in relation to the number of children catching infection. Since children from large families have lower w/a and a higher risk of contracting measles (Aaby, Bukh *et al.*, 1984a), part of the reason for the higher risk of dying of measles among children < 65% may be that more of these children contracted measles. Furthermore, in this community, females have a lower state of nutrition and a higher CFR in measles infection (Bhuiya *et al.*, 1987). A higher proportion of females in the < 65%-group is thus likely to explain some of the higher mortality among children with low weight. Subsequent studies from the same area found no difference in state of nutrition between children dying of measles and controls (Koster *et al.*, 1981).

Measles infection in children with kwashiorkor is probably associated with higher CFR (Sinha, 1977), but an increased severity among marasmic children has not been documented (Bhaskaram *et al.*, 1986). Though severe malnutrition may be associated with higher CFR, this would explain little of the excess measles mortality in developing countries because too few children are severely malnourished (Aaby, 1988a).

The contrast between Africa and Asia seems incomprehensible from the nutritional point of view. In Guinea-Bissau, mean weight-for-height (w/h) of children under three years of age was 97 per cent (Aaby, Bukh *et al.*, 1983) and the CFR was 25 per cent (Aaby, Bukh *et al.*, 1984a). In Bangladesh, weight for height was as low as 87 per cent, but the CFR was no more than 3 per cent (Koster *et al.*, 1981).

### Age at infection

Since the CFR is highest among the youngest children, it is usually assumed that measles mortality is highest where many children contract infection at a young age. Hence it has been predicted that measles mortality should be higher in urban areas where the age at infection is lower than in rural areas (Foster, 1984; Davis, 1982). However, there is good evidence from developing countries that the CFR is higher in rural than in urban areas (Aaby, 1988a).

In Guinea-Bissau, we experienced a fall in the CFR at the same time as the state of nutrition deteriorated and the mean age at infection decreased (Aaby, Bukh *et al.*, 1988b). Recent studies have not found that the immune response to measles was related to age (Coovadia *et al.*, 1984). Thus, there is little evidence to show that the age at infection in the community has an important impact on the level of mortality.



## Transmission factors

### Intensive exposure and dose of infection

In all community studies (Guinea-Bissau, Gambia, Senegal, Bangladesh, Kenya and England) where exposure has been examined, secondary cases have been more severe than index cases (Table 1). Difference in the risk of becoming a secondary case seems to explain a very large part of the known variation in measles mortality. Mortality is high where a high proportion of the children become secondary cases (Table 2). For example, in Guinea-Bissau 61 per cent of the children under three years of age were secondary cases and the CFR was 25 per cent, whereas in Bangladesh only 14 per cent of the children of the same age group were secondary cases and the CFR was only 3 per cent (Aaby, 1988a). Measles mortality is particularly high in West Africa where, because of larger families and a high proportion of polygyny, children have a much higher risk of becoming secondary cases (Aaby, 1988a). One reason for the higher CFR in rural areas in spite of the higher age at infection seems to be that the longer interval between epidemics results in more children from the same family becoming ill in the same epidemic. The risk of being intensively exposed is therefore higher in rural areas than urban districts (Aaby, Bukh *et al.*, 1988b).

**Table 1**

**Severity of measles infection, according to type of exposure, in different community studies.**

Country (reference)	Age (months)	CFR (deaths/number ill)				Relative Risk
		Index %	No.	Secondary %	No.	
Guinea-Bissau (Aaby, Bukh <i>et al.</i> , 1984a)	6-35	12	8/66	37	34/91	3.1
Guinea-Bissau (Aaby, Bukh <i>et al.</i> , 1988d)	5-35	2	1/42	29	10/35	12.0
Guinea-Bissau (Aaby, 1989)	3-59	7	1/15	38	33/86	5.8
Kenya (Aaby and Leeuwenburg, 1990)	3-35	3	8/234	10	17/173	32.9
Bangladesh (Koster, 1988)	4-35	1	1/134	18	4/22	24.4
England (Aaby, Bukh <i>et al.</i> , 1986a)	4-35	8	4/48	22	8/36	2.7
Copenhagen (Aaby, 1988b)	2-35	11	28/252	27	49/183	2.4

Part of the reason for the higher mortality among infants and young children may be that they are more likely to be intensively exposed. Studies from both industrialized and developing countries have shown that small children are more likely to become secondary cases than their older siblings (Table 3). Infections like measles are usually transmitted between children from different families in the age group where there is a high degree of contact between susceptibles. For example, for measles this used to be the age of schooling. Children who contract infection before and after that age are more likely to have been infected at home from a sibling who got measles at school (Aaby, Bukh *et al.*, 1986b).

This pattern may also partly explain why childhood infections are more severe in teenagers and young adults. When these get measles they have often contracted infection from a younger sibling or one of their own children.

**Table 2**  
**Frequency of secondary cases and case fatality rate in measles in community studies**

Country (reference)	Age (months)	Ratio of secondary case (secondary/total cases)		CFR Deaths	
		%	No.	%	No.
Guinea-Bissau (Aaby, Bukh <i>et al.</i> ,1984c)	3-35	90	56/66	40	25/62
Guinea-Bissau (Aaby, Bukh <i>et al.</i> ,1984a)	6-35	58	91/157	27	42/15
Senegal (Garenne and Aaby,unpubl.)	2-35	56	96/171	20	34/171
England (Aaby, Bukh <i>et al.</i> ,1986a)	4-35	46	46/90	14	14/100
Guinea-Bissau (Aaby, Bukh <i>et al.</i> ,1988d)	5-35	45	35/77	14	11/77
Guatemala (Gordon <i>et al.</i> ,1965)	0-59	38	99/260	5	15/292
Kenya (Muller <i>et al.</i> ,1977; Leeuwenburg <i>et al.</i> ,1984)	0-35	22	216/999	6	34/592
Bangladesh (Bhuiya <i>et al.</i> ,1987)	0-59	20	630/3181	2	61/3458
USA (McCormick <i>et al.</i> ,1977)	0-59	14	10/71	10	3/30
Bangladesh (Koster,1988)	0-35	14	22/156	3	5/156
Gambia (Lamb,1988)	6-35	8	1/13	0	0/13

No confounding factor seems to explain the difference in mortality between index and secondary cases (Aaby, 1989). If it is a biological phenomenon rather than an effect of confounding, a dose-response effect should be expected. Hospital records from Copenhagen have been examined in order to test whether the number of index cases had an impact on the CFR of the secondary cases (Table 4). The CFR was significantly higher ( $p<0.05$ ;  $\chi^2=4.65$ , Mantel-Haenszel) among children exposed to two or more index cases compared to a single index case. Similar observations have been made in Kenya (Aaby and Leeuwenburg, 1990).

The most simple explanation of the higher CFR following intensive exposure would seem to be that the absorbed dose of measles virus is greater (Aaby, Coovadia *et al.*, 1985). Since a high dose leads to short periods of incubation in animal studies, we have examined the period between rashes for index and secondary cases as an approximation for the incubation period among the children hospitalized in Copenhagen in the period 1915-1925 (Table 5). Compared with the survivors, the fatal secondary cases clearly had a much



**Table 3****Percentage of secondary cases in different age groups, Guinea-Bissau**

Age (years)	1979		1980-1983	
	%	No.	%	No.
0	69	58	63	70
1-2	58	116	49	157
3-4	40	70	56	72
5-45	54	76	51	102

**Table 4****Case fatality rate (CFR) among secondary cases of measles, according to number of index cases. Copenhagen, Denmark, 1915-1925, and Machakos, Kenya, 1974-1981**

Country (reference)	Age (Years)	CFR (deaths/no. of cases)		Relative risk*
		1 index case	2 index cases	
Denmark	0-4	18% (28/152)	35% (15/43)	1.8 (1.1-3.1)
Kenya (Aaby and Leeuwenburg, 1990)	0-6	6% (18/303)	14% (5/37)	2.5 (0.9-6.6)

\*Mantel-Haenszel relative risk has been used to stratify for age

**Table 5****Interval between rash in index case and secondary case for fatal and surviving secondary cases of measles. Blegdamshospitalet, Copenhagen, 1915-1925.**

Fatal cases	Proportion with interval 10 days	
	Surviving cases	
86% (6/7)	29% (4/14)	

Note: This statistic is based on those secondary cases aged less than three years who came from families where an index case had also been hospitalized. Both the index and the secondary cases had been observed within three days of the rash.

shorter interval between rash in the index case and own onset of eruption ( $p < 0.05$ , Wilcoxon two sample test). Thus, fatal cases apparently have a shorter period of incubation than survivors. The difference may be even stronger because the prodromal period has been found to be prolonged in severe cases (Aaby, Bukh *et al.*, 1986a). Using the interval between rashes as an approximation for the period of incubation will therefore lead to an

overestimation of the length of the period in severe cases. These observations are compatible with the hypothesis that severe disease is related to the absorption of a high dose of virus (Aaby, Coovadia *et al.*, 1985).

**Amplification of severity in the community**

Previous studies on severity and transmission of infection have emphasized the difference between index and secondary cases (Aaby, 1988a). However, since severe cases probably excrete more virus (Scheifele and Forbes, 1972), the severity of the secondary cases could depend on the severity of the index case. This has been tested among the children in Copenhagen, where both the index and the secondary case were hospitalized and clinical severity of both cases had been assessed. Compared with secondary cases infected by an index case without pneumonia, secondary cases infected by a severe index case (pneumonia/death) had significantly higher CFR (Table 6, RR=3.87, 95%CI:1.65-9.08). A similar observation was made in Kenya where secondary cases infected by an index case who died had a significantly higher mortality than a secondary case infected by an index case who survived (RR=4.69; 95%CI:1.64-13.41). Though poor treatment of both index and secondary cases could play some role, these observations would seem to suggest that severe cases generate more severe secondary cases. The pattern of transmission of measles in the community could therefore cause both a positive and a negative feedback. Where most index cases are mild, they will give rise to new, relatively mild index and secondary cases, the net result being a lowered mortality. However, where index cases are severe, they will transmit an even more severe disease to new index and secondary cases, producing a high mortality in the end. It is probably this kind of process which causes measles to become particularly severe in institutions. For example, among children in a German refugee camp in 1915 (Reder, 1918), the CFR increased from 10 per cent (5/50) in the first two months of the epidemic to 45 per cent (286/628) during the remaining four months ( $p<0.001$ ;  $\chi^2=23.9$ ).

**Table 6**  
Case fatality rate among secondary cases according to the severity of the index case. Blegdamshospitalet, Copenhagen, 1915-1925.

Age (months)	Deaths/no. of cases (%)			Total	
	First case no pneumonia	First case had pneumonia /died			
6-35	4/21 (19%)	9/14	(64%)	13/35	(37%)
36-59	0/11	1/3	(33%)	1/14	(7%)
Total	4/32 (13%)	10/17	(59%)	14/49	(29%)

Note: The table only includes secondary cases from families where the index case had also been hospitalized.

**Cross-sex transmission**

Surprisingly, it was found in several community studies from Guinea-Bissau that secondary cases infected by someone of the opposite sex had higher CFR compared with infection from someone of the same sex (Aaby, Bukh *et al.*, 1986d). For example, mortality for



children aged 6-59 months was higher in houses where a boy and a girl had measles together (26%) compared with houses with two boys or two girls (11%) (RR=2.65; 95%CI:1.20-5.84). Something similar seems to have occurred in Copenhagen (Table 7). Mortality was significantly higher ( $P<0.05$ , Mantel-Haenszel,  $\chi^2=4.36$ ) in families with a boy and a girl having measles than in families with two boys or two girls (RR=1.85; 95%CI:1.04-3.30). In Senegal, it was likewise observed that cross-sex transmission increased the CFR (Garenne and Aaby, unpublished data). This pattern may help explain differences in mortality by sex. It seems likely that girls are more bound to the home. Boys presumably have a greater chance of getting out and therefore contracting infection outside the home. As a consequence, girls suffer from a dual disadvantage: a higher risk of becoming a secondary case as well as a higher risk of being infected by someone of the opposite sex.

**Table 7**

**Case fatality rate in families with two cases of measles according to gender composition. Blegdamshospitalet, Copenhagen, 1915-1925.**

Age (months)	Deaths/no. of cases (%)		
	Male+female	Two males	Two females
6-35	20/67 (30%)	7/42 (17%)	8/43 (19%)
36-59	2/30 (7%)	0/17	0/14
6-59	22/97 (23%)	7/59 (12%)	8/57 (14%)

Source: Aaby, 1988b

### **Delayed impact of intensive exposure**

The importance of the transmission factor approach may go even further. Most studies have only dealt with acute measles mortality (within one month of the rash). Recent studies, however, have suggested that measles may have a profound effect on morbidity and mortality after the acute infection (Aaby, Clements and Cohen, 1987). In Guinea-Bissau, Gambia and Nigeria it was observed that children had a strong excess mortality in the months and even years following measles infection (Aaby, Clements and Cohen, 1987). Though there are no studies of the determinants of this delayed impact, it seems likely that excess morbidity and mortality are related to intensity of exposure during the acute infection. In Senegal, secondary cases not only had much higher acute mortality, they also had a three times higher mortality than index cases in the year following measles infection (Garenne and Aaby, unpublished data). In Bissau, we have also found that children exposed to measles at home during the first six months of life have a mortality three to four times higher than community controls between three months and five years of age (Aaby, Bukh *et al.*, 1988a). These observations suggest that intensive exposure has an effect beyond the acute phase of infection. The mechanism causing this delayed mortality is not known. It seems likely, however, that some kind of immuno-suppression is involved. The children who belonged to the exposed group had a particularly strong excess diarrhoea mortality.

In Guinea-Bissau, it has been the experience that children of mothers exposed to measles during pregnancy have a more than four times higher perinatal mortality and two times higher post-perinatal mortality (Aaby, Bukh *et al.*, 1988c, 1989). These observations have not been examined anywhere else, but have been systematic in both an urban and a rural epidemic in Bissau. Should they be confirmed elsewhere, it would mean that measles may have consequences for mortality which have not been considered previously.

Measles mortality decline

The industrialized world

The different hypotheses provide quite different interpretations of the process of measles mortality decline. In England where the best analyses have been made (Reves, 1985), a very important fall in measles mortality took place between 1910 and 1930 (Table 8). It has been suggested that this process was related to improvement in nutrition. The major basis for such suggestions has been the correlation between poor social status as measured by the number of rooms occupied by the family and the CFR in measles (Morley, 1973). However, this correlation may not necessarily indicate that the poor children were malnourished and therefore had a higher case fatality rate in measles. It could equally well mean that children living in small apartments had a higher risk of getting intensively exposed to measles. There are no specific data to link changes in nutrition and improved survival in measles infection.

Table 8  
Age specific measles mortality rate per million, England and Wales, 1911-1930  
(Reves, 1985)

Age (years)	1911-1915	1916-19201	1921-1925	1926-1930
<1	3,130	1,931	1,337	1,284
1-4	2,905	1,861	1,182	999
5-9	250	190	85.9	95.9
10-14	17.1	12.7	6.5	10.3
15-19	9.4	12.8	2.4	3.6
20-24	7.1	10.0	1.7	1.6

It has also been hypothesized that the decline in measles mortality in the industrialized world at the beginning of this century is related to an increase in the age at infection (Reves, 1985). The birth rate fell dramatically, from 6.7 children per woman in 1875 to 2.6 in 1925 in England. Since children in small families get infected at a later age, it has been assumed that the reduction in family size led to an increase in the age at infection in the community (Reves, 1985; *Lancet*, 1985). Though the risk of infection within the family diminished in this period owing to the change in family structure, in the same period the risk of infection outside the family may well have increased and reduced the age at infection because of more widespread urbanization, improved means of transport, higher degree of schooling and more public child care. There are no general data for all of England to show that the age at infection did in fact go up in this period (Reves, 1985). The few community studies and reports of notifications do not suggest a major change: the proportion of cases under three years of age has been remarkably constant (Aaby, Bukh *et*



*al.*, 1988b). When measles was severe in the United Kingdom, Picken (1921) noted that variations in mortality could not be explained by differences in age distribution. Furthermore, it is known that the mean age at infection in England fell from 5.5 to 4.4 years between 1944 and 1968 (Anderson and May, 1982).

There is no adequate explanation for the decline in measles CFR in the industrialized world before the advent of antibiotics (Lancaster, 1952). However, the change may be related to the pattern of transmission and a process of mild feedback. Studies from England and hospital studies from Copenhagen have shown that secondary cases of measles also had a higher CFR than index cases when mortality was high in measles in the industrialized countries. One community study from Sunderland in 1885 suggests that the proportion of secondary cases in England was as high as the one found in Africa today (Aaby, Bukh *et al.*, 1986a). Though there are no proper epidemiological studies of the transmission of measles under present-day conditions in the industrialized countries, it seems likely that the reduced family size as well as changes in schooling and public child care have meant that the proportion of secondary cases has been significantly reduced since the beginning of this century. It may also have been important that doctors in the 1920s and 1930s started to prevent or modify measles infection with the use of convalescence serum (and later gamma globulin). This treatment would have been applied precisely to the high risk group for measles mortality, namely small children exposed at home to a sibling. The impact on mortality of this type of prophylaxis has not been properly assessed. In virgin-soil epidemics among indigenous peoples where everybody gets measles at the same time, gamma globulin has had a marked effect on the CFR (Aaby, Bukh *et al.*, 1987).

Though the reduction in frequency of secondary cases would explain a large part of the drop in mortality, it cannot explain the whole change, as there are still secondary cases in the industrialized world and mortality is virtually nil. However, when the proportion of secondary cases is reduced in the community, more and more of the index cases will be mild because of infection from mild index cases rather than severe secondary cases. Thus, secondary cases may have become milder and the general severity of measles in the community may have been gradually reduced through a process of positive feedback.

In order to examine this process further we have used the records from the infectious diseases hospital in Copenhagen. It will be seen in Table 9 that children who contracted measles in a day-care institution had a significantly lower mortality than index cases who contracted measles from another child in the same apartment building. Presumably, exposure has been less intense in the kindergarten because children sick with measles have been kept at home, whereas playmates may have continued to have contact even if one were sick. Since children infected in kindergartens also had much lower mortality than secondary cases, the process of establishing public or private day-care institutions may have contributed to the fall in measles mortality by moving the small children out of the home where they used to get infected by their older sibling attending school. Public child care may thus have reduced mortality by reducing the proportion of secondary cases, but it may also have a more general effect by leading to the transmission of mild measles. It will be seen in Table 10 that there was a marked variation in measles mortality from one year to another in the period from 1915 to 1925. There was also a large variation in the proportion of children infected in a day-care institution. Not surprisingly, the case fatality rate was lower in the years when many children had contracted measles in a day-care institution since

these children had lower CFR. However, the data in Table 10 also indicate that the CFR for children under three years of age not infected in a kindergarten was lower in those years when a large proportion of all children had contracted infection in a day-care institution (logistic regression,  $p=0.001$ ,  $\chi^2=10.88$ , 1 df). These observations seem to support the suggested pattern that more mild cases of measles will lead to less severe infection in the community in general.

**Table 9**  
CFR in measles according to source of infection and age Blegdamshospitalet, 1915-1925

Age (years)	CFR (deaths/no. of cases)					
	Source of Infection				Secondary cases	
	Day care		Neighbours, playmates			
	%	No.	%	No.	%	No.
0	13	5/40	40	4/10	29	16/55
1	5	3/64	22	5/23	29	24/84
2	6	2/31	22	4/19	20	9/44
0-2	7	10/135	25	13/52	27	49/183

Source: Aaby, 1988b.

**Table 10**  
CFR in measles according to age and year and frequency of children infected in day care institutions. Blegdamshospitalet, Copenhagen, 1915-1925

Year	All ages		< 3 yrs		Children < 3 yrs not in day-care inst.		Per cent infected in day-care, children < 3yrs	
	%	No.	%	No.	%	No.	%	No.
1915	10	114	16	49	20	35	29	49
1916	20	295	29	123	31	116	6	123
1917	10	100	21	42	20	38	10	42
1918	8	153	18	66	19	58	12	66
1919	14	172	23	84	25	72	14	84
1920	18	244	23	125	24	115	8	125
1921	8	72	10	30	11	28	7	30
1922	8	167	14	69	16	57	17	69
1923	16	304	29	96	30	90	6	96
1924	9	275	14	108	16	83	23	108
1925	10	312	12	160	14	125	22	160
Total	13	2,208	20	952	22	817	14	952

**Developing countries**

There are apparently only three studies, from Guinea-Bissau, Gambia and Kenya, which have analysed situations with a significant decline in measles mortality (Aaby, Bukh *et al.*,



1988b; Lamb, 1988; Aaby and Leeuwenburg, 1990). In none of these areas was the state of nutrition a risk factor for the severity of measles infection.

In Guinea-Bissau, the CFR for children under five years fell from 21 per cent (74/356) in the year preceding the introduction of a measles vaccination program to 14 per cent (34/242) for unvaccinated children catching measles in the following five years ( $p < 0.05$ ). Thus not only had the number of cases been clearly reduced, but the CFR for children still catching measles was also reduced. A major reason was that vaccination reduced the clustering of susceptible children. After the introduction of the vaccination program, children had therefore less risk of getting intensively exposed as secondary cases. A further reason may have been that many vaccinated children caught measles, but in general less severely (Aaby, Bukh *et al.*, 1986c). These vaccinated cases may therefore have contributed to the transmission of mild measles.

From the village of Keneba in Gambia, two epidemics of measles have been described. The first epidemic, in 1961 killed 22 per cent of all children (259) under five years of age (McGregor, 1964). In the subsequent epidemic in 1984-85, none of 26 children less than five years old died (Lamb, 1988). The availability of medical care during the latter epidemic is likely to have been important. However, it is also noteworthy that the pattern of measles transmission had changed completely owing to the high vaccination coverage ( $> 90$  per cent) in the village. Whereas other studies from the same region have suggested that more than 50 per cent of the children in the high-risk group under three years of age are secondary cases, in the second outbreak only one out of 13 (8 per cent) of the children in this age group was a secondary case.

Measles mortality was studied in the Machakos area of Kenya during a period of seven years from 1974 to 1981 (Muller *et al.*, 1977; Leeuwenburg *et al.*, 1984). The CFR fell from 6.2 per cent in the first two years to 1.4 per cent and 1.1 per cent in the 3rd-4th and the 5th-7th years of the project. In this area the risk of dying of measles was not related to the state of nutrition as measured by the arm circumference. Since the research team did not believe that improved medical services had an increasingly favourable influence on disease outcome, there is no simple explanation why the CFR fell so dramatically. Vaccinations may again have played an important role also for the unvaccinated children. During the course of the project the coverage for measles vaccination increased from 20 to 56 per cent. A re-analysis of the data from Machakos has also shown that the proportion of secondary cases per index case was reduced during the last part of the project (Aaby and Leeuwenburg, 1990).

Thus all studies of measles mortality decline indicate that profound changes in severity have been associated with changes in the transmission pattern. There are no indications that changes in nutrition or age at infection have been of major importance.

### **Prevention of measles as a test of the contrasting hypotheses**

The different hypotheses of the determinants of severe measles lead to very different evaluations of specific disease intervention (vaccination, immunoprophylaxis). If measles primarily kills weak and malnourished children, measles immunization may have a limited effect on survival (Kasongo Project Team, 1981; Mosley, 1985). However, if intensity of exposure is the major determinant of severe measles, there is no reason that it should be the particularly weak children who die of measles (Aaby, Bukh *et al.*, 1984b). They would not be more likely to die of other infections. Immunization against measles should therefore have significant impact on survival. The seven available community studies from Nigeria,

Guinea-Bissau, Senegal, Zaire, Bangladesh and Haiti indicate a reduction in child mortality after the age of vaccination of at least 30 per cent, and six of the studies found a reduction of at least 45-50 per cent (Aaby, Clements and Cohen, 1987; Aaby, Pedersen *et al.*, 1989). In the one study which compared mortality among children who seroconverted and children who failed to seroconvert because they received an ineffective vaccine, mortality was three times higher for the non-seroconverters than for the seroconverters (Aaby, Pedersen *et al.*, 1989). In all studies, the reduction in mortality was greater than expected on the basis of the relative importance of acute measles mortality for overall child mortality. Immunization apparently prevents part of the delayed mortality as well. There is therefore no reason to believe that it is mainly the weak and malnourished who die from measles.

### **Conclusion: host or transmission factors**

There is little to indicate that host factors such as malnutrition and young age at infection play a major role for the severity of measles infection. The host hypotheses are not able to explain the major contrasts in measles mortality and some of their predictions are in glaring contrast to the known epidemiology of severe measles. On the other hand, transmission factors seem capable of explaining much more of the variation in mortality; differences in mortality between historical periods, according to crowding, between regions, between rural and urban areas, between different ages and between the sexes correspond to differences in the intensity and type of exposure. The patterns which are contradictory to the host factor hypotheses, e.g. the difference between Africa and Asia and between rural and urban areas, are compatible with the transmission factor approach. All of the documented examples of measles mortality decline are connected with profound changes in exposure, whereas there has been no documentation that this decline has followed major changes in nutrition or age at infection. In contrast to host factor approaches, the transmission perspective gives strong weight to disease-specific interventions, and all available studies support the role of such interventions for measles infection (Aaby, Pedersen *et al.*, 1989).

Comparable studies do not exist for other infections. However, since secondary cases of chickenpox and polio have been found to be more severe (Aaby, Coovadia *et al.*, 1985), it seems likely that transmission factors play a role in diseases other than measles.

In a socio-cultural perspective, the importance of intensive exposure suggests that social institutions and cultural practices which bring many susceptible children together may be important risk factors for child survival (Table 11). On the other hand, practices which reduce the risk of exposure at home may contribute to decline in mortality. Practices concerning fertility and spacing, household and compound structure, house building traditions, sleeping patterns, isolation of sick children and use of specific disease prevention may therefore be important determinants of the mortality pattern. The importance of intensive exposure may have been recognized indirectly in the 'measles parties' which ensured that children caught measles outside the home instead of being caught by measles at home (Morley and Aaby, 1988). No study has really examined to what extent the different mechanisms of severe measles infection have been reflected in conscious or unconscious behaviour patterns. For example, to what extent has isolation of sick children been practised in order to prevent transmission of severe disease? Or has there been any recognition that infection contracted from the opposite sex is more severe? There was some recognition that small children exposed at home from their school-aged siblings constituted a particularly high-risk group. Thus it was suggested that schools should keep a file of pupils who had small susceptible siblings so that the parents could be advised to



board out the small children as soon as measles appeared in the school. However, most of the decline in measles mortality in the industrialized world was probably an unintended by-product of the socio-economic processes which led to smaller family size and therefore fewer children to get exposed at home; urbanization and extra-family institutions for child care which increased the risk of infection outside the home; and better housing which increased the possibility of isolation of sick children. These changes may have had a much larger effect on mortality than usually assumed because both the acute and the delayed consequences of measles infection would have been reduced.

**Table 11**  
**Factors affecting risk of intensive exposure to measles**

High risk	Low risk
Polygyny	Monogyny
Large compound	Small compound
High birth rate (large sib)	Low birth rate (small sib)
Twins	Singletons
Short child spacing	Long child spacing
Multifamily house	Single family dwelling
Small apartment	Large apartment
Joint beds/bedrooms	Separate beds/bedrooms
Epidemic	Endemic
Rural area	Urban area
	Extrafamily contact, public
	chamily dwelling
Small apartment	Large apartment
Joint beds/bedrooms	Separate beds/bedrooms
Epidemic	Endemic
Rural area	Urban area
	Extrafamily contact, public child care
	Immunoglobulin prophylaxis

Some of the same processes may eventually occur in developing countries with similar effect. However, most of the future fall in measles mortality is likely to be the result of public health planning. From a host factor perspective, particular emphasis has been given to improving nutrition (Sinha, 1977), changing the age at infection (Reves, 1985) and improving the treatment given to measles cases. However, from the transmission perspective, the most important public health measure would seem to be to prevent infection by vaccinating the children. Since secondary cases have particularly high mortality, it seems appropriate to try to prevent measles by vaccinating all susceptible contacts as soon as a case is detected in a house. If vaccination does not work as a prevention after exposure, there may be a good case for using immunoglobulin for the high-risk groups in developing countries. The important socio-cultural question may therefore be why children are or are not vaccinated and not why they are well-nourished or why they are brought to a clinic.

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## Chapter 52

# Behavioural factors affecting transmission and treatment of acute respiratory infections

Jeroen K. van Ginneken

### Introduction

This paper summarizes research on behavioural factors with an impact on morbidity and mortality of acute respiratory infections (ARI) in children below five in low-income countries. The role of such factors has been investigated by paediatricians, epidemiologists, microbiologists, nutritionists, demographers, sociologists and anthropologists. This review is to a large extent limited to research in which behavioural, social and cultural factors received explicit attention.

This review makes use of various sources of information. Of particular importance are longitudinal, population-based studies which have been conducted in a number of low-income countries. Another source of information consists of views and opinions of paediatricians who have referred to the importance of social and cultural factors in a number of publications. In addition, relevant information is derived from cause-of-death registers and from cross-sectional surveys on levels and determinants of infant and child mortality in general, without reference to specific causes of death. Finally, use is made of some data derived from studies using the anthropological perspective.

### Acute respiratory infections considered in more detail

Acute respiratory infections can be divided into infections of the upper respiratory tract (AURI) and the lower respiratory tract (ALRI). AURI involves the nose, sinuses, tonsils, pharynx and larynx while ALRI affects the trachea, bronchi and lungs.

By far the most frequently occurring form of AURI is the common cold; much less common are tonsillitis (sore throat), otitis media (ear infection) and croup. Common colds often tend to become chronic; there is continuous nasal discharge but the child is not ill. Common colds and other AURIs are often caused by viruses such as rhinovirus, respiratory syncytial virus and influenza virus. The case fatality rate from AURIs is normally low.

Two often occurring forms of ALRI are acute bronchitis and pneumonia. Of these two diseases pneumonia especially is a dangerous disease with a high case fatality rate in very young children. Bronchitis and pneumonia are often complications of a common cold or other AURIs. This happens when viruses and bacteria travel down the respiratory tract where a viral attack is often followed by a bacterial infection with serious consequences. Various factors influence the severity of pneumonia and other ALRIs. One of these is the virulence of the bacteria involved in ALRIs. A pneumococcal infection caused by *Streptococcus pneumoniae*, for instance, leads in general to more serious complications than an infection due to *Haemophilus influenzae*. Another factor affecting the severity of ALRIs concerns the health condition of the child. A malnourished child is less able to defend itself against attacks by viruses and bacterial infections than a well-nourished child. Climatological factors and seasonal changes in weather conditions also play a role. For

more details on aetiological aspects of ARI see, for instance, Berman and McIntosh, 1985, Pio *et al.*, 1985 and Shann, 1986.

Bacterial respiratory super-infections are frequently consequences of episodes of measles, whooping cough, etc. Such respiratory complications may account for as much as half of the deaths associated with such diseases. Diseases such as measles and whooping cough which often lead to ARI complications are not considered in this paper.

Infectious agents of ARIs are transmitted by air by means of droplets, for example, through coughing and sneezing. Since these diseases are spread by air, high rates of transmission can be expected in situations of intensive crowding. Therefore, these infections have a high incidence in families living in congested conditions and with many young children. Since transmission occurs by droplets, high secondary infection rates among household contacts of index cases can be expected. For more details on transmission aspects of ARI, see, for example, Morley, 1973, Jelliffe, 1974, Mosley, 1983 and Riley, 1985.

The development and distribution of vaccines effective against respiratory pathogens is the ideal solution to the problem of fatal respiratory infections. Effective vaccines are currently available only against influenza A. Other vaccines giving immunity to pathogens causing ARI are being developed: pneumococcal polyvalent polysaccharide vaccine and *Haemophilus influenzae* vaccine. It is, however, doubtful that these will be applied on a large scale in developing countries in the immediate future. There are several factors limiting the usefulness of these vaccines: cost, inadequate immune response in infants and the short duration of protection. Therefore, until new vaccines are available which can be applied on a large scale in developing countries, the most effective way of dealing with ARIs, in particular pneumonia, is by means of treatment with antibiotics. For more details see Bulla and Hitze, 1978, Berman and McIntosh, 1985 and Riley *et al* 1986.

## Mortality levels and patterns

### General considerations

In a general review of the limited data available on ARI mortality in children under five, it was estimated that out of nearly 15 million children under five dying each year, 4 million die of acute respiratory infections; more than 90 per cent of these deaths occur in developing countries (Leowski, 1986). Limited data from death certificates in Kenya and Senegal confirm the importance of ARI as a leading cause of death (Ewbank *et al.*, 1986; Cantrelle *et al.*, 1986). This is also confirmed in results of three longitudinal, population-based studies which will now be discussed.

### The Niakhar study, Senegal

Table 1 shows that the total under-five mortality rate in a rural area of Senegal was 310 per 1,000 live births and of lower respiratory infections 37 per 1,000 (in 1983-1985). This group of diseases is, after diarrhoeal diseases, the second most important cause of death in the post-neonatal period and in childhood. Table 2 indicates that pneumonia and related ALRIs are particularly dangerous in the first six months after birth and, to a lesser extent, in the second year after birth. Strong seasonal differences in mortality were observed. The total death rate (all causes combined) in the rainy season was about 1.8 times higher than in the dry season for children who died between one month and five years after birth. The elevated risk of mortality in the rainy season was to a considerable extent due to malaria and diarrhoeal diseases; there were no seasonal differences for respiratory diseases



(Garenne *et al.*, 1987). Roughly similar results were found in an earlier study which took place in 1963-1981 in Ngayokheme which is part of Niakhar District (Cantrelle *et al.*, 1986).

**Table 1**  
**Mortality of children under five per 1,000 live births by cause of death in three projects**

Cause of death	Niakhar, Senegal <sup>1</sup> 1983-1985		Matlab, Bangladesh <sup>2</sup> 1975-1977		Machakos, Kenya <sup>3</sup> 1975-1978	
	Rate	%	Rate	%	Rate	%
Intest. infect. diseases	81.4	26.2	80.0	28.6	14.8	19.0
Tetanus	14.5	4.7	39.8	14.2	0.0	0.0
Measles	25.6	8.3	21.1	7.5	11.7	15.1
Malaria	19.8	6.4	u	u	3.5	4.5
Other infect. diseases	18.6	6.0	u	u	3.2	4.1
Nutr. deficiencies	7.9	2.5	u	u	5.3	6.8
Respiratory diseases	36.5	11.8	16.8	6.0	14.9	19.2
Perinatal problems	29.2	9.4	u	u	18.8	24.2
Accidents	u	u	9.4	3.4	1.0	1.3
Others and unknown	76.4	24.6	112.6	40.3	4.5	5.8
Total	310.1	100.0	279.7	100.0	77.7	100.0
N	986		7,858		338	

u = unknown  
<sup>1</sup>Calculated from Garenne *et al.*, 1987  
<sup>2</sup>Chen, Rahman and Sarder, 1980.  
<sup>3</sup>Adapted from Omondi-Odhiambo *et al.*, 1987.

**Table 2**  
**Total mortality and mortality of acute respiratory infections (ARI) of children under five by age at death (mortality rates per 1,000 surviving children at beginning of age interval)**

Age in Months	All causes		Acute Resp. Inf.	
	Niakhar, Senegal <sup>1</sup> 1983-1985	Machakos, Kenya <sup>2</sup> 1975-1978	Niakhar, Senegal <sup>1</sup> 1983-1985	Machakos, Kenya <sup>2</sup> 1975-1978
< 6	80.9	34.4	13.2	8.0
6-11	40.5	15.9	6.9	3.6
12-23	90.6	11.6	10.2	1.8
24-35	83.6	7.1	4.4	1.2
36-47	32.5	3.7	2.7	0.0
48-59	18.4	2.3	1.8	0.0
Total	310.1	73.1	36.5	14.3
N	986	338	116	66

<sup>1</sup>Calculated from Garenne *et al.*, 1987.  
<sup>2</sup>Omondi-Odhiambo *et al.*, 1987, and unpublished data.

**The Matlab study, Bangladesh**

The overall under-five mortality observed in Matlab, Bangladesh is slightly lower than that in Senegal; namely, 279.7 per 1,000 as compared to 310.1 per 1,000. The pattern of the major causes of death, shown in Table 1, reflects several differences between the two areas. The leading cause of death in both is intestinal infectious disease, with a rate of about 80 per 1,000 in both cases. In Matlab, however, tetanus is more prevalent, with a mortality rate of 39.8, two and a half times that in Senegal. Respiratory diseases, on the other hand, account for fewer deaths, with a rate of just 16.8, half that of Senegal. It should be added, however, that all of the above-mentioned rates concerning Matlab are probably higher than shown in Table 1 owing to the fact that in 40 per cent of deaths the cause of death was classified as 'other or unknown'. In Bangladesh, a seasonal increase in respiratory mortality was observed in the period from December to March, the cold season (Chen, Rahman and Sarder, 1980).

**The Machakos study, Kenya**

Table 1 shows that in Machakos total mortality in the under-five population was 78 per 1,000 live births in 1975-1978. Mortality due to respiratory diseases was 15 per 1,000 live births; nearly all of these deaths were due to pneumonia. This makes it as important a cause of death in children under five as diarrhoea. Other important causes of death were conditions relating to labour and delivery, and measles. Pneumonia is again a very dangerous disease in the first six months after birth and becomes gradually less important at later ages (see Table 2). This age pattern of mortality is different from that of other infectious diseases. The peak mortality of diarrhoeal diseases, for example, is between 6 and 12 months after birth. The various procedures used to collect these data and more detailed results have been described by Omondi-Odhiambo *et al.* (1987).

**Table 3**  
**Number of deaths due to acute respiratory infections by age of death in months and by place of death, Machakos project, Kenya, 1975-19778**

	< 6 months	6-11	12-17	18-23	24-35	36-59	Total
Home	22	8	4	3	0	0	37
Hospital	15	8	4	2	0	0	29
Total	37	16	8	5	0	0	66

Table 3 indicates that 56 per cent of all ARI deaths under five took place at home (in 1975- 1978) and about 44 per cent in the hospital. The median age at death at home was about five months and in hospital six months. Unpublished information on pneumonia deaths by month of death in children below five indicates that there were more pneumonia deaths between January and July than in the other months of the year. The elevated number of deaths between March and July roughly coincides with the period of the long rains, but there is no increase in deaths in the period of the short rains between roughly the middle of October and the middle of January.



A comparison of total death rates of Niakhar with Machakos shows that mortality levels in rural Senegal are much higher than in rural Kenya. The comparison also shows that although mortality rates of ARI are higher in Niakhar than in Machakos, ARI is a more important cause of death in Machakos (19 per cent of all deaths under five) than in Niakhar (12 per cent of all deaths under five).

Morbidity levels and patterns

The Bakau study, The Gambia

The objective of this study was to determine the impact of a number of infectious diseases on growth of children in the first two years of life. A total of 126 newborns were recruited over a period of 12 months starting in 1981 and examined at under-five clinics at intervals of one month. A variety of information was collected routinely during the examinations; one of these topics concerned various types of illness which the child had experienced in the month prior to the examination; relevant for our purpose is the information on AURI and ALRI. The prevalence of these two diseases was expressed in the form of percentage of the time ill. This percentage was calculated as the number of days with AURI and ALRI reported between successive visits divided by the number of days between the two visits and multiplied by 100. Results on morbidity of AURI and ALRI are shown in Table 4.

Table 4  
Prevalence of acute respiratory infections per 100 child-days of observation as diagnosed by physician

Age in months	Bakau, The Gambia <sup>1</sup> 1981-1983		Bana, Burkina-Faso <sup>2</sup> 1983-1984	
	AURI	ALRI	AURI	ALRI
0-5	28.5	2.3	11.5	10.5
6-11	24.4	5.7		
12-17	18.2	4.0		
18-23	12.7	3.5	20.5	14.0
24-35			25.5	15.5
36-47			15.5	9.5
48-59			13.0	8.5
Total	24.0	3.8	16.5	11.5
N	126	126	151	151

<sup>1</sup>Information was collected with recall period of 1 month; period-prevalence measure used (percentage of the time ill); Rowland *et al.*, 1988.  
<sup>2</sup>Diagnosis of AURI at time of examination by physician; data on dry and rainy season were combined; point-prevalence measure used; Lang *et al.*, 1986.

Children suffered from upper respiratory infections 24 per cent of the time and children below six months about 29 per cent of the time. These diseases had no significant influence on growth faltering in the two years after birth. Lower respiratory infection was relatively uncommon as shown in Table 4, but when it occurred it was very dangerous, because of its strong impact on growth faltering. Of the 10 diseases covered in this study, AURI had the highest prevalence followed by diarrhoea, skin and eye infections and oral infections (Rowland *et al.*, 1988).

The Bana study, Burkina-Faso

This study was conducted in a village of 900 inhabitants near Bobo-Dioulasso in both the rainy and dry seasons in 1983-1984. All children in the village (151) were included in the study. The objective of the study was to determine the morbidity levels due to ARI and to identify factors influencing this morbidity. ARI morbidity was measured in two ways. A physician examined all the children in their homes about once a month. In addition, fieldworkers visited the households of these children once a week to collect information on occurrence of a number of symptoms during the previous week. Data on prevalence of AURI and ALRI as diagnosed by the physician at the time of visit are shown in Table 4. AURI is more common than ALRI and both AURI and ALRI occur most frequently in the second and third year after birth. ARIs were the leading group of illnesses in the village followed by diarrhoea and malaria. Information on prevalence of symptoms of ARI as identified by the fieldworkers during their weekly visits is provided in Table 5.

Table 5  
Prevalence of symptoms of acute respiratory infections per 100 child-days of observation based on reports of fieldworkers

Age in months	Machakos, Kenya <sup>1</sup> 1974-1977					Matlab, Bangladesh <sup>2</sup> 1975-1977	Bana, Burkina-Faso <sup>3</sup> 1983-1984		
	Nasal discharge	Cough	Fever	Ear discharge	Resp. distress	AURI	Nasal discharge	Cough	
0-5	22.1	3.8	0.7	0.05	0.10	54.4	}	14.0	}
6-11	45.8	5.0	1.8	0.18	0.15	61.2			
12-17	55.9	4.3	1.6	0.15	0.11		}	14.6	}
18-23	60.0	3.9	1.2	0.10	0.06				
24-29	59.9	3.6	1.1	0.05	0.04		}	14.0	}
30-35	58.5	3.3	0.8	0.06	0.04				
36-41	55.6	3.0	0.6	0.04	0.03	\	}	8.8	}
42-47	55.7	2.9	0.6	0.02	0.02				
48-53	54.1	2.7	0.5	0.02	0.02	59.1	}	10.0	}
54-59	52.7	2.4	0.4	0.02	0.01	/			
Total	52.1	3.7	1.1	0.07	0.06	60.3		12.7	22.5
N	3,900	3,900	3,900	3,900	3,900	197		149	149

<sup>1</sup>Symptoms observed during visit; point-prevalence measure used; Gemert & Leeuwenburg, 1982.  
<sup>2</sup>Based on visits by fieldworkers every other day and confirmed by physician; period-prevalence measure used; 2-5 months instead of 0-5 months; Black *et al.*, 1982.  
<sup>3</sup>Based on visits by fieldworkers with recall period of 1 week; data from dry and rainy season combined; period-prevalence measure used (percentage of the time showing symptoms); Lang *et al.*, 1986.

Children had nasal discharge about 13 per cent of the time and showed symptoms of cough about 23 per cent of the time. Surprising is the low percentage of the children



showing signs of nasal discharge since AURI was diagnosed by the physician during about 17 per cent of the visits (see Table 4). The information on ALRI as provided by the fieldworkers is also different from that of the physician. Symptoms of cough occur more often when reported by the fieldworkers (23 per cent of the time) than when ALRI was diagnosed by the physician (12 per cent of the visits). Fieldworkers' reports also indicate the highest prevalence of cough in the third year after birth.

With the data provided by the fieldworkers it was also possible to provide estimates on incidence and duration of AURI and ALRI (see Table 6). The number of episodes of nasal discharge was 5.7 per year in children under five while for cough it was 7.5. The duration of the episodes was about 8.5 days for nasal discharge and 11 days for cough. Nasal discharge occurred in this village about 49 days per year while children were affected by coughing about 83 days per year.

**Table 6**

**Incidence (number of episodes) of symptoms of ARI per 100 children per year based on reports of fieldworkers**

Age in years	Tari, Papua New Guinea <sup>1</sup> 1972-1973	Dong Guan, China <sup>2</sup> 1981-1983		Bana, Burkina-Faso <sup>3</sup> 1981-1983	
	ALRI	AURI	ALRI	Nasal disch.	Cough
< 1	107	395	29	610	710
1-2	51	}	}	640	800
2-3	23			530	890
3-4	8	}	}	380	620
4-5	7			380	710
5-7		196	11		
7-12		92	3		
Total	41	185	15	570	750
N	1,595	514	514	149	149

<sup>1</sup>Based on visits by fieldworkers with recall period of 2 weeks; severe and moderate acute lower respiratory infection combined; Riley *et al.*, 1981.

<sup>2</sup>Based on regular home visits by personnel of co-operative medical station; Zhang *et al.*, 1985.

<sup>3</sup>Based on visits by fieldworkers with recall period of 1 week; data from dry and rainy season combined; Lang *et al.*, 1986.

The results reported in this study on seasonal differences in prevalence of AURI and ALRI morbidity were not consistent. Results provided on the basis of diagnoses of the physician in the dry and rainy seasons were not in accordance with the reports of the fieldworkers (Lang *et al.*, 1986).

### **The Machakos study, Kenya**

A total of about 3,900 children were visited by fieldworkers every two weeks in 1974-1977. During these visits the fieldworkers asked questions on a number of diseases, in particular measles, whooping cough and diarrhoea, and made observations on a number of morbidity symptoms such as nasal discharge, cough, oedema, inflamed eyes, sore mouth, ear discharge and respiratory distress: flaring nostrils, lower rib recession, etc. The questions on

measles, whooping cough and diarrhoea were asked of all children; the question on diarrhoea was only asked this way during part of the study period. Observations on the morbidity symptoms mentioned above were made only when an affirmative reply was given on a screening question whether the child had been ill since the previous visit or whether the child looked ill in the opinion of the fieldworker. The temperature was taken by the fieldworker when there was a positive reply to the screening question or when the child looked ill. Information on the prevalence of ARI morbidity symptoms is given in Table 5. Nasal discharge is a very common symptom in the Machakos Project area with the highest prevalence between 18 and 36 months after birth. Cough is a much less common symptom observed by the fieldworker in about 4 per cent of the visits. Ear discharge and respiratory distress were rarely observed. One of the reasons for the low scores on some morbidity symptoms was probably that observations on these two symptoms were made only when there was a positive reply to the screening question or when a child looked ill.

The association of these morbidity symptoms with subsequent mortality was also determined. Nasal discharge, cough and ear discharge were not significantly related to mortality; fever and respiratory distress, however, as measured in this study, were serious symptoms, because they had significant positive relationships with subsequent mortality. Seasonal differences in ARI morbidity symptoms were also studied. Trends in prevalence of these symptoms did not correspond with trends in rainfall and temperature (Gemert and Leeuwenburg, 1982).

#### **The Matlab study, Bangladesh**

A study of morbidity among children in rural Bangladesh found upper respiratory infections to be by far the most prevalent illness in children under five years of age, namely 60.3 days per 100 child-days (see Table 5). Upper respiratory infection was slightly more frequent in the second year of life than at other times, and was somewhat more common in the cool, dry months of the year. Fever was found to occur during 9.1 per cent of days with upper respiratory infection. The incidence of pneumonia was only 0.3 per 100 child-days, but pneumonia was still the second cause of child hospitalization (after diarrhoea), with a rate of 6.5 hospital admissions per 100 child-years (Black *et al.*, 1982).

#### **The Dong Guan Brigade study, Beijing, China**

A population-based study on the aetiology and incidence of ARI was carried out in a rural area of Beijing with a population of nearly 2,200 including 526 children under the age of 12. All children were visited at home or in primary school at regular intervals. The average annual incidence of ARI was 200 per 100 children (or 2 episodes per child per year). Incidence of both AURI and ALRI by age is shown in Table 6. The number of episodes of AURI was highest in children below one and declined regularly with increasing age. The number of episodes of ALRI was much lower than that of AURI. There were also seasonal differences in ARI: incidence was in general higher in the winter months and lower in the other months of the year. (Zhang *et al.*, 1985).

#### **The Tari study, Papua New Guinea**

This study in the highlands of New Guinea focused on morbidity and mortality rates from acute lower respiratory tract infection. In this area, the infant mortality rate was 72 per 1000; 16 per 1000 for children from one to four; and three per thousand for children from five to nine. ALRI was the leading cause of death for children. Table 6 summarizes the findings of the study for children under five years. The risk of ALRI is greatest in the first year of life,



with an incidence of 1.1 episodes per child per year at that age. After the first year, the number of episodes falls sharply. In Tari, a child can expect two attacks of ALRI by age five, of which about one and a half will be severe (Riley *et al.*, 1981).

### Conclusions

A wide variation in operational definitions and measurement procedures was used in these longitudinal studies to determine ARI morbidity levels: examination by physician versus reports by fieldworkers, incidence versus prevalence rates, point-prevalence versus period-prevalence rates, recall period varying from every other day to one month, etc. This is one reason why it is difficult to draw conclusions on the levels of ARI prevailing in developing countries. An additional problem specific for ARI is that symptoms of ARI such as nasal discharge occur frequently, but they are not severe, while other symptoms such as respiratory distress are rarely reported during home visits but they are life-threatening.

### Impact of socio-economic factors in general as well as crowding and indoor air pollution

#### General considerations

A number of cross-sectional surveys have been carried out in developing countries on socio-economic determinants of infant and child mortality. Most of these studies have found that one or more of the following factors have an impact: education of the parents, household income, quality of water and sanitation, number of children below five and housing conditions (e.g., Tekce and Shorter, 1984; Hobcraft *et al.*, 1984; United Nations, 1985; Rahman *et al.*, 1985; ). It is likely that several of the above-mentioned factors are also important determinants of ARI mortality. This must be the case since respiratory infections are frequently one of the main causes of death in infancy and childhood. Yet, several of the above-mentioned factors are of a general nature and are not always the most crucial with respect to ARI. Paediatricians and other medical specialists have mentioned a number of more specific determinants of ARI morbidity and mortality and strongly related to socio-economic conditions: crowding in households, indoor air pollution (e.g. amount of smoke) and ventilation (e.g., Morley, 1973; Lucas and Gilles, 1976; Shann, 1985). Results of a few longitudinal studies which have been done on these factors with respect to ARI morbidity are now reviewed.

#### The Bana study, Burkina-Faso

Socio-economic status was measured with a few questions on possession of modern articles. None of these indicators showed a relationship with ARI morbidity symptoms. Household size was also not related to morbidity. Birth order, however, showed a positive association: the higher the birth order, the higher the incidence of ARI morbidity and the higher the number of weeks the child showed such symptoms. A multivariate analysis was also performed whereby the strength of the association of birth order and ARI morbidity was determined after controlling for nutritional status, measured here with mid upper-arm circumference. After adjustment of arm circumference, birth order was still positively correlated with number of weeks with ARI symptoms and number of ARI episodes. In addition, there was a positive, but not statistically significant association of birth order and arm circumference (Lang *et al.*, 1986).

### **The Kirkos study, Ethiopia**

Variation in the occurrence of morbidity due to diarrhoea, ARI and other diseases among 749 children under 12 years old was determined in a longitudinal study carried out in 1972-1973. Data on the independent variables were obtained from a cross-sectional survey conducted at the beginning of the study period. Socio-economic and hygiene variables included number of children below five, marital status of parents, household income, number of household members per room, type of floor, water consumption, type of latrine, and education of mother and father. There were several dependent variables derived from the disease surveillance system which was based on two-weekly home visits. The dependent variable which is relevant here is the percentage of home visits during which children showed ARI symptoms. Results of multivariate analysis indicated that none of the independent variables was related to ARI morbidity symptoms with the exception of household size and the number of children under five years in the household in the age category below two years old: the larger the number of household members and the larger the number of under-fives in the household, the higher the ARI morbidity score. This relationship was not found in the age category between two and five years and between five and 12 years. It is of interest to note that these associations were quite different from those with respect to diarrhoea morbidity. Many socio-economic and hygiene variables were related to diarrhoea morbidity in the sense that low socio-economic status and poor hygiene were associated with a higher than average morbidity. Such relationship did not exist with respect to ARI morbidity.

A study was also conducted on spreading of ARI illness within households. Secondary occurrence of ARI symptoms within households was considerably higher than it was outside households. Episodes of ARI illness tended to occur in small outbreaks within households. It was also possible to calculate secondary attack rates. These attack rates were 21 per cent in children below two years old and 31 per cent in children between two and five years old. This may indicate that children in these age groups have a high degree of contact with other infected children (Frey and Wall, 1977).

### **The Maragua Area study, Kenya**

A study of indoor air pollution was conducted in the Maragua area, Central Province, Kenya. The objectives of the study were to measure a variety of air pollutants within houses, to evaluate the factors contributing to exposure of children under five to indoor air pollution, and to explore the possible relationship between indoor air pollution and incidence of ARI. Measurements were taken of 36 randomly selected households. All of the households used a wood fire inside the home for cooking. The houses were stratified into groups according to roofing (iron or thatched) and kitchen arrangement (attached or detached) to evaluate differences between housing types. A questionnaire was administered to the mother of each household. A 24-hour average measurement for respirable suspended particles (RSP) and  $\text{NO}_2$  was performed twice for each household.

The results showed high concentrations of RSP: the mean of the 24-hour RSP was  $1400 \text{ ug/m}^3$ , which is 20 times the indoor RSP levels from cigarette smoke measured in Dutch homes. The average concentration during the seven or so hours a day that the cooking fire burned was 3,500 to  $4,000 \text{ ug/m}^3$ . The highest concentrations of RSP were found during the evening hours: up to  $36,000 \text{ ug/m}^3$ . This peak pollution time corresponds with the time most children are indoors and exposed to indoor pollution. High levels were also found for



various polycyclic aromatic hydrocarbons (PAH), many of which have been shown to be carcinogenic to experimental animals. Analysis of the results showed no significant difference in pollution levels in houses of the different house types, although there was a slight trend toward higher pollution levels in dwellings with an iron roof and with a detached kitchen. Not surprisingly, then, no relation was found between the number of ARI episodes of the children and the type of house they lived in (UNEP and WHO, 1987).

### **The Basse Area study, The Gambia**

A study of indoor air pollution (from cooking fires) was conducted in the Basse Area, The Gambia, with essentially the same objectives as those for the previous study in Maragua Area, Kenya. Many of the findings were similar to those of the Maragua study. The exposure was homogeneous throughout the study population. The geometric mean of the 24-hour average suspended particles was even higher than that found in the Maragua study: about 2000 ug/m<sup>3</sup> in the dry season and 2100 ug/m<sup>3</sup> in the rainy season: at least part of the difference was due to the presence of sand dust as well as wood smoke in The Gambia. The levels of NO<sub>2</sub> were similar to those in Maragua, and PAH concentrations were high, especially in the dry season.

Of particular interest are social factors that influence the level of exposure of women and children to indoor air pollution. In the Maragua study, each household had its own kitchen and performed its own cooking. In the Gambia study, the social unit is an extended family, which lives in a compound with several dwelling huts and one cooking hut (kitchen). The wives of the family take turns preparing the food, thus reducing the exposure of each woman. Infants were near the fire only when carried on the back of the mother, and older children were generally not allowed into the kitchen hut, although they were observed in kitchen huts sometimes during the rainy season. Thus, although the level of pollution in this study was similar to or higher than that observed in the Maragua study, the exposure level, especially of children, was substantially lower: 1.5 to 1.8 hours per day, as compared to four hours per day in the Maragua study (UNEP and WHO, 1988).

### **Conclusions**

Data were available from two longitudinal studies on the impact of demographic and socio-economic determinants of ARI morbidity; no studies could be found on factors associated with ARI mortality. Household size and birth order showed in both studies an influence on ARI morbidity indicating the importance of crowding in households as a determinant. Other aspects of socio-economic status as measured in these studies were not related to ARI morbidity. Results were also presented of two studies on levels of indoor air pollution. In both studies high air pollution levels were found suggesting that they could be important factors influencing the course of respiratory infections in children. The impact of air pollution levels and housing characteristics on ARI morbidity could not be investigated in these studies owing to too much homogeneity of the households in terms of air pollution levels.

The above-mentioned studies indicate that there are various difficulties which may occur in the implementation of such longitudinal studies. One of these is the problem of accuracy and specificity of the independent variables used. Indicators of socio-economic status which are often used in these studies are not specific enough with respect to ARI morbidity and mortality. Another problem of such longitudinal studies is sometimes that the areas in which the studies took place are too homogeneous in terms of socio-economic

status or levels of indoor air pollution with the result that, for instance, households of high socio-economic status are under-represented or absent.

This section started by indicating that paediatricians and other public health specialists have referred to the importance of socio-economic factors for ARI in children below five in low-income countries. The results summarized here indicate that there is on the whole little empirical evidence on the role of these factors. More of these longitudinal, population-based studies should, therefore, be carried out in low-income countries. The independent variables in such studies should be more specific and more accurately measured than has been done in studies carried out so far. In addition, there should be an emphasis on those risk factors which are amenable to intervention. Such studies have been conducted in the UK and USA (Brimblecombe *et al.*, 1958; Leeder *et al.*, 1976 and Schenker *et al.*, 1983 cited in Kendall and Leeder, 1985).

Finally, reference is made to a number of cross-sectional surveys which have recently been conducted on ARI symptoms in a number of low-income countries, for example in the framework of the Demographic and Health Surveys of the Institute of Resource Development. Results of these surveys need to be studied in more detail to determine their potential for measuring levels and determinants of perceived ARI morbidity.

## **Impact of nutritional factors**

### **General considerations**

Paediatricians and other public health specialists have frequently stated that various nutritional factors are crucial determinants of ARI morbidity and mortality. This refers in particular to birthweight, breastfeeding patterns, food availability, composition of the diet including micronutrients and nutritional state of the child. In addition, mention has to be made of the fact that episodes of ARI can have a negative impact on the nutritional state of the child. This section deals only with some of these aspects.

Malnutrition makes children more susceptible to respiratory infections and increases mortality risks of pneumonia. This statement is supported by clinical experience and is also derived from studies showing an impact of malnutrition on infant and child mortality in general. The deduction is then made that since pneumonia is an important cause of death, the relationship will hold not only with respect to mortality in general, but also with respect to pneumonia (e.g., Jelliffe, 1974; Foster, 1984; Berman and McIntosh, 1985). It has also been claimed that only severe malnutrition leads to more susceptibility to ARI and to higher mortality; there is no such impact in cases of mild or moderate malnutrition (Morley, 1973). This statement is supported by research in Bangladesh showing that severely malnourished children (< 65 per cent weight-for-age of the Harvard Standard) experienced substantially higher mortality, but not normal, mild or moderately malnourished children. This was found for under five mortality in general as well as for mortality from 'other causes' and respiratory infections form a substantial proportion of deaths in the category 'other causes' (Chen, Chowdhury and Huffman, 1980). This research does not, of course, provide answers to the question to what extent this impact of nutrition is due to biological factors, such as incomplete immunologic protection, and to behavioural factors, such as competition with siblings.

Breastfeeding has also been mentioned as having a protective effect against ARI. Breastfeeding is important because it promotes better nutrition in infancy and childhood and leads to less ARI morbidity and mortality. For evidence on this point, see Winikoff



(1983) and Pio *et al.* (1985). There is no agreement if and to what extent there is a direct impact of breastfeeding in the sense that full breastfeeding in particular leads to passive immunity against respiratory pathogens. Some claim that there is a direct beneficial immunologic effect of breastmilk on ARI, but others are of the opinion that such a protective effect has not been demonstrated (Berman and McIntosh, 1985). This section will not deal with this topic any more, except to point out that breastfeeding is, of course, an important behavioural variable. Instead we will review results of four longitudinal studies on the influence of other nutritional factors than breastfeeding on ARI morbidity.

### **The San Jose study, Costa Rica**

In 1966, a longitudinal study was undertaken to evaluate the influence of malnutrition on morbidity and mortality from diarrhoeal and respiratory infections in children. The children for the study were chosen randomly from a door-to-door survey of randomly-selected streets in the poorest districts of San Jose. Two weeks prior to the beginning of the study, each child was weighed and assigned to either the normal weight group (54 children) or the malnourished group (83 children). The duration of the study was 54 weeks. During that time, each child was seen weekly at home by the physician, who questioned the mother about the occurrence of specific symptoms during the preceding week. Each child was weighed monthly.

The study showed that the average number of attacks of all forms of respiratory infection was roughly the same for malnourished and normal weight children. However, the duration of infection was three to four days longer for malnourished children, and severe forms of ARI were significantly more frequent. Bronchitis occurred almost three times more often, and pneumonia occurred 17 times more often in the malnourished than in the normal weight group. All of the four deaths that occurred during the study were malnourished children, two with severe diarrhoea and two with pneumonia (James, 1972).

### **The Purwarkarta study, Indonesia**

An 18-month longitudinal study of an average of 3,135 preschool age children in rural Indonesia revealed a relationship between vitamin A deficiency, as indicated by xerophthalmia, and development of respiratory disease or diarrhoea. The children were examined every three months. Incidence of diarrhoea and respiratory disease was calculated for each three-month period, stratified by presence or absence of mild xerophthalmia at the start and end of the interval.

Analysis of the results revealed that for children under five the risk of respiratory disease was almost twice as great for xerophthalmic as for normal children, regardless of overall nutritional status. The data do not definitely prove a causal relationship between vitamin A deficiency and development of respiratory disease, since another cause or condition could be responsible for both. However, the results suggest that it is likely that there is a causal link between vitamin A deficiency and increased risk of respiratory disease. Furthermore, vitamin A deficiency appears to aggravate malnutrition: among xerophthalmic children, those who were malnourished (less than 90 per cent weight-for-height of a Western standard) had 50 per cent higher incidence of diarrhoea and respiratory illness than those of normal nutritional status, but the nutritional status of non-xerophthalmic children was not related to risk of respiratory illness. (Sommer *et al.*, 1984).

### **The Bana study, Burkina-Faso**

Nutritional status was assessed in two ways: weight-for-height ratio and mid upper-arm circumference. According to the weight-for-height ratio, no statistical difference was observed in prevalence of ARI morbidity symptoms (percentage of the time showing nasal discharge or coughing) between the malnourished children (less than 80 per cent of a standard) and the well fed. However, mid upper-arm circumference was related to ARI morbidity: among children with an arm circumference below 13.5 cm the number of weeks with ALRI symptoms was higher than in children with a circumference of more than 13.5 cm. A similar relationship existed between upper-arm circumference and percentage of the time showing AURI symptoms, but in the dry season only. The relationship between arm circumference and percentage of the time showing ARI symptoms was stronger than with number of episodes of ARI symptoms. These relationships continued to exist after controlling for birth order (Lang *et al.*, 1986).

### **The Kirkos study, Ethiopia**

In the previous section of this paper reference was already made to the 1972-1973 study linking socio-economic status and related variables to prevalence of ARI morbidity. In the same study data were also collected on nutritional status measured by weight-for-age at the beginning of the study and expressed in percentages of the Harvard Standard. Weight-for-age was not related to ARI morbidity which is in strong contrast with diarrhoea morbidity. Weight-for-age was of all the variables included in the analysis the most powerful predictor of prevalence of diarrhoea (Frey and Wall, 1977).

### **Conclusions**

Two of the four studies reviewed here showed that poor or inadequate nutritional state of the child led to higher than average ARI morbidity while in a third study such a link was not found. A fourth study found that vitamin A deficiency, long recognized as the leading cause of blindness in childhood, was also an important risk factor for ARI. A fifth study by Rowland *et al.* (1988), the Bakau study mentioned above, looked at the impact of infectious disease on nutrition and found that episodes of ALRI led to growth faltering.

The impact of malnutrition on ARI and vice versa has both biological and social or behavioural aspects. Several of the behavioural causes of both malnutrition and ARI morbidity have been studied by nutritionists and epidemiologists in the framework of longitudinal studies. More attention could be paid in future longitudinal, population-based studies on ARI to behavioural variables such as breastfeeding patterns. More studies could also be done by behavioural scientists on the role of other behavioural factors as, for instance, feeding practices during illness. It is a relevant topic, because it has frequently been mentioned that mothers may stop or change regular feeding when a child becomes sick, with adverse consequences.

## **Impact of medical and primary health care**

### **General considerations**

Until vaccines become available which can be applied on a large scale in developing countries, the single most effective method of combating severe acute respiratory infections is by treatment with antibiotics. Such treatment takes place in hospitals and health centres which means that availability and accessibility of medical care provided by hospitals and health centres and cost of drugs are major factors influencing ARI morbidity



and mortality. The major role of medical care is only mentioned here since to quantify its impact is beyond the scope of this paper.

During the last decade, a number of pilot projects have been carried out whereby treatment of severe ARI infections has been provided by community health workers in the framework of the primary health care approach. Several of these projects have been carried out under the auspices of the World Health Organizations' ARI Control Programme (WHO, 1984). The results of four pilot projects will now be discussed briefly.

### **The Narangwal study, Punjab, India**

In early 1971, a baseline study established that two conditions, diarrhoea and pneumonia, were responsible for 66 per cent of the deaths of children under five years of age in the study area. On the basis of this study it was decided to conduct an evaluation of the community health program, which was based on community-based health workers who made weekly home visits. Following evaluation of the existing procedures, new and clearer guidelines were developed to assist the primary health workers to recognize serious conditions; new procedures were developed to assure follow-up of serious conditions; and the primary health workers were instructed to begin penicillin treatment for any child with a cough and either a high fever (rectal temperature 102 deg. F) or laboured respiration. If no improvement was observed within four to six hours following the initial injection, the injection was to be repeated and the child immediately referred to the physician.

Implementation of the training program and the new procedures led to a 45 per cent reduction of the death rate for pneumonia in the period from January, 1972 to May, 1973 as compared to 1971, in spite of an increase in the reported incidence of pneumonia, possibly due to inclement weather but also possibly due to improved reporting procedures. Mean duration of episodes of ALRI was also reduced from 4.4 days in 1971 to 2.4 days in 1972-73, and estimated case fatality rates declined from 105 per 1,000 episodes to 22 per 1,000 episodes. (McCord and Kielmann, 1978; Kielmann *et al.*, 1983).

### **The Bagamoyo study, Tanzania**

Intervention consisted of training and use of Village Health Workers (VHWs). The VHWs visited each household with children below five every six to eight weeks giving health education to mothers about symptoms and signs of ARI, and referring severe cases to the next higher level of care. The villages of the district were randomly divided into two areas. VHWs were deployed in the intervention area from the beginning while in the control area they were introduced only in the second year of operation of the project. Other health interventions were implemented in both the intervention and control areas on a modest scale. Evaluation of the impact of the health intervention was done by the VHWs who registered all deaths in the intervention area and some fieldworkers did the same in the control area. At a later phase in the project registration of deaths occurred by means of yearly censuses.

Some results of the project are shown in Table 7. There was a significant decline in the control area in ARI specific mortality from 14.4 per 1,000 children in 1983 to 9.8 per 1,000 (average of 1984, 1985 and 1986) ( $p < .001$ ).

Assuming that mortality in the intervention area equalled that of the control area in 1983 (14.4 per 1,000), a decline in ALRI mortality was also observed in the intervention area (9.5 on average in 1983-1986). The impact of non-ARI health interventions on mortality rates shown in Table 7 was probably very limited. This health intervention study demonstrates the

feasibility of using VHWs to reduce ARI morbidity and mortality (Mtango and Neuvians, 1986; WHO, 1988).

**Table 7**  
ALRI-specific and total under 5 mortality in 3 projects (mortality rates calculated per 1,000 children)

	ALRI mort. rate		Non-measles ALRI mort.		Total mort. rate	No. of children
<b>Bagamoyo, Tanzania</b>						
Control area						
C: 1983	14.4	}p<0.001	9.6	}p=0.11	40.1	8,098
I: 1984	12.2		9.4		35.0	9,915
I: 1985	8.6		7.0		38.7	10,054
I: 1986	8.7		7.3		32.9	10,274
Intervention area						
I: 1983	11.4		8.0		32.4	8,028
I: 1984	10.4		8.7		29.2	9,099
I: 1985	8.1		6.7		30.8	10,542
I: 1986	8.0		6.5		29.5	9,533
<b>Bohol, Philippines</b>						
Control area						
PreC: 1984_85	6.7		4.9		16.6	10,012
C: 1985-86	5.0		4.0		15.0	10,604
C: 1986-87	6.6		4.4		15.4	10,545
Intervention area						
Prel: 1984-85	7.2	}p=0.55	6.7	}p=0.07	18.5	10,209
I: 1985-86	5.9		5.2		16.6	10,028
I: 1986-87	7.2		4.8		15.5	9,938
<b>Abbottabad, Pakistan</b>						
Control area						
C: 1985	14.2		u		39.4	1,194
C: 1986	14.5		u		39.4	1,245
I: 1987	6.5		u		27.8	1,224
Intervention area						
I: 1985	8.5		u		31.9	4,665
I: 1986	4.0		u		26.2	4,741
I: 1987	3.8		u		21.0	5,000

Notes:  
C = control area  
I = intervention area  
PreC = baseline survey in control area  
Prel = baseline survey in intervention area  
p values indicate results of tests of significance

Source: Adapted from WHO, 1988, Table 4, p.8.

**The Bohol study, Philippines**

An intervention project was developed to reduce ARI mortality in children under five and included surveillance of a control group so that the effectiveness of the intervention could be evaluated. Both the intervention area and the control area consisted of approximately 10,000 children under five years, of whom about 1,000 were infants. Baseline studies conducted in 1984 showed that the two areas were largely similar, although the control area had somewhat higher incidence of measles and somewhat lower levels of home electricity and safe water supply.



The study was carried out between 1985 and 1987. In the intervention area, midwives were trained to serve as clinic-based health workers for ARI. They were trained to identify ARI and to determine the level of severity, from mild to severe/complicated. They were also authorized to administer antimicrobials for moderately severe ARI, and hospitalization was called for in the case of more severe symptoms. The children were seen by the above-mentioned health workers at clinics, where they were brought by their mothers. No attempt was made at actively seeking out ARI cases by home visits. In the control area, the existing health clinics continued to operate without change. Overall mortality was measured by both a continuous monitoring system and by semi-annual household surveys. Cause of death was identified by means of a verbal autopsy, usually conducted seven to ten days after death, using a standard questionnaire.

Table 7 indicates that ALRI (non-measles) mortality of children under five fell by 28 per cent in the intervention area ( $p = 0.07$ ) and 10 per cent in the control area. There was also some decline in overall mortality under five in the intervention area ( $p = 0.11$ ) and even less in the control area. This study shows a rather small effect of a case management programme in which sick children were brought to a clinic (WHO, 1988).

#### **The Abbottabad study, Pakistan**

This study was undertaken to evaluate the effectiveness of active case detection and case management for ALRI in a rural, mountainous area in 1985-1987. A control area was also maintained for two of the three years. The population of 31 villages constituted the intervention area, while the population of nine villages served as the control area. The intervention consisted of training the primary health workers, located in the community, to recognize the symptoms of ALRI, to evaluate the severity of symptoms, and to administer initial antimicrobial treatment, with follow-up treatment to be provided by a physician. Rather than relying on mothers to bring their sick children to a clinic, this study trained the primary health workers to make home visits every 10 to 14 days to actively seek ALRI cases for early diagnosis and treatment. In addition, the primary health workers educated mothers about the dangers of ALRI and how to recognize symptoms of a serious condition requiring treatment.

During the time of the intervention, other health programs were implemented in both the intervention and the control areas: these included immunization, nutrition, and diarrhoeal disease control programs.

Figures on overall mortality were obtained by the primary health workers in the intervention area. In the control area, mortality was measured by means of a quarterly survey. Cause of death in both areas was estimated by verbal autopsy; the interval between death and verbal autopsy was longer in the control area than in the intervention area.

The results show a significant impact of the intervention program on ALRI mortality in the control area. Table 7 shows that ALRI-specific mortality fell by 55 per cent between 1985-1986 and 1987. There was a similar reduction in ALRI mortality between 1985 and 1986-1987 in the intervention area; this was probably due to the rapid expansion of immunizations and other health interventions in 1985. As a result of all types of health interventions combined, overall mortality per 1,000 children fell significantly in both the control and intervention areas (WHO, 1988).

## Conclusions

The nature of the involvement of the primary health workers varied in the four projects described here: in three of the four there was active case finding by means of home visits; in two of these three there was health education plus treatment with antibiotics. The third project described was a clinic-based program without active case finding; this was one of the reasons why the impact of that project was smaller than in the other three. The other three examples showed, therefore, that community-based health interventions were successful in reducing mortality due to ARI in children under five. A complicating factor in the analysis of the data of these projects was the implementation of health interventions on other childhood diseases than ARI. This makes it difficult to separate the impact of the ARI control program from that of the other health interventions. Another complicating and confounding factor could have been the lack of uniformity in data collection methods used to measure infant and child mortality. Research procedures often varied between the control and intervention areas or they changed over time and this may have influenced the results.

## Impact of health beliefs and practices

### General considerations

This section deals with studies on beliefs and practices with respect to ARI using the anthropological perspective (e.g., Foster, 1982) or the micro approach (e.g., Caldwell *et al.*, 1988). The beliefs and practices refer to mothers of children, other family members and traditional healers.

Methods used to study these phenomena include in-depth interviewing and participant observation. Several reasons can be mentioned why it is important to study ARI, and other infectious diseases, from an anthropological perspective. Morley, for instance, in his book on tropical paediatrics pays a great deal of attention to the need for taking an anthropological approach with respect to prevention and treatment of infectious diseases. In fact, he considers the topic so important that he devotes a whole chapter to it (Chapter 3, 'Beliefs and attitudes to child rearing and disease') and references are made to the topic in many other chapters (Morley, 1973).

It is thus relevant to summarize studies which have been done on ARI according to the anthropological perspective. Owing to lack of time, however, it was not possible to undertake a comprehensive search of the various medical anthropological sources. To the extent that this search was undertaken, it was unsuccessful. From studies conducted in the framework of the Machakos Project in Kenya and related studies in Machakos District, it was possible to obtain some relevant information concerning ARI.

### The Machakos study, Kenya

A study on the system of traditional medicine among the Akamba was carried out by van Luyk (1982, 1984). Some results of this study insofar as they are relevant for an understanding of ARI will be described briefly. It is well known among the Akamba that common complaints especially among young children are the common cold or running nose and coughing. It is also known that these symptoms are very infectious: if one child in the family gets it, all other children are likely to get it. People are also very much aware that these symptoms occur more frequently in the rainy season and during cold weather. There are various types of traditional treatment of the common cold and coughs; they usually



involve use of herbs prepared either at home or by herbalists and either consumed in liquid form or to be swallowed. Nowadays these traditional treatments are largely replaced by medicines which can be bought in local shops or obtained at local health centres and hospitals.

Two other more serious symptoms which are recognized by the Akamba are tuberculosis and pneumonia. This last disease is described by the term *kyambo* which indicates a sharp pricking or cutting pain in the chest. It is only roughly equivalent to pneumonia, because it seems to be a somewhat less serious complaint than implied by the term pneumonia. The cause of the disease is usually said to be related to coldness. A certain place in the chest under the ribs becomes too cold; the blood is not functioning properly at that place and then the pain starts. *Kyambo* is treated traditionally by herbalists, replaced nowadays to a considerable extent by visits to health centres and hospitals.

When the normally prescribed treatment, provided by herbalists and/or health centres, does not help and the child remains ill or becomes more gravely ill, people believe that it was bewitched. If witchcraft is suspected the bewitching power has to be taken away before the child can be treated by application of herbal medicine or more modern forms of treatment. The evil power can be taken away by the traditional medico-religious specialist (*mundu mue*). When a child who is thought to be bewitched dies, it is said that 'some witch stole the life of the child'. The *mundu mue* played an important role in traditional society and it is difficult to determine how often the *mundu mue* is consulted nowadays; people will not readily admit that they have visited one. Visits to the *mundu mue* certainly do take place in extreme situations or as a last resort in case of serious illness (Ndeti, 1972; van Luyk, 1982, 1984; Good, 1987).

## Conclusions

Information on beliefs and practices concerning ARI as derived from the Machakos Project was very incomplete. There was, for example, no information on actions, or lack of actions, taken by mothers when children developed pneumonia. Were the actions which were taken beneficial or harmful? Did they wait too long before visiting a health centre or hospital? Taking into account that the literature search has been incomplete, the conclusion is probably valid that very few studies have been conducted on ARI from an anthropological or micro perspective; it would be very valuable to undertake such studies. It has already been mentioned that in various places in paediatric textbooks or ARI review articles, reference is made to the existence of beneficial and harmful effects of practices of mothers with respect to episodes of ARI (e.g., Morley, 1973; Shann, 1985). Detailed studies of such practices as well as other related topics could have direct implications for health education. Shann, for instance, suggests that the incidence of pneumonia might be reduced by measures that decrease the number of bacteria in the nose: older children and adults should blow their noses frequently and use handkerchiefs (Shann, 1985). Detailed studies of behaviour of children, older siblings and other family members dealing with this type of personal hygiene could and should be undertaken by anthropologists, sociologists and other behavioural scientists.

## Conclusion

Morbidity and mortality due to acute respiratory infections (ARI) in children below five years in low-income countries poses an important public health problem. Paediatricians and other specialists in public health have frequently referred to the importance of socio-

economic, cultural and behavioural factors as determinants of ARI morbidity and mortality. In view of these facts, it is appalling to note how little research has been done on these social and cultural determinants. There are several ways to improve this situation as far as research is concerned. The most urgent of these is in my opinion to conduct more quantitative, epidemiological studies dealing with specific determinants of ARI morbidity and mortality and more qualitative studies using an anthropological perspective.

In the first place, more longitudinal, population-based studies should be carried out by epidemiologists focusing on specific socio-economic and behavioural factors with respect to ARI. In such studies attention should also be paid to precise and standardized ways of measuring ARI morbidity and mortality. In addition to this type of studies we identified other types of longitudinal studies relevant for ARI and dealing with indoor air pollution, nutrition and primary health care. Such studies frequently include behavioural aspects and these aspects should be further expanded and receive more explicit attention in future studies.

Secondly, more studies should be done by medical sociologists and anthropologists using methods of research such as in-depth interviewing and participant observation. Several topics of research to be investigated with this anthropological perspective were identified in preceding sections on, for instance, crowding in households, breastfeeding patterns, feeding practices during illness, personal hygiene practices and involvement of community health workers. When carrying out research along the lines proposed above, it is imperative to focus on those social and behavioural factors which are amenable to intervention, for example, those aspects of personal hygiene of mothers which are relatively easy to change by means of health education. Likewise, it is important to emphasize studies which have as objective to assess the impact of interventions on ARI morbidity and mortality.

Thirdly, efforts need to be made to determine if and to what extent the use of cross-sectional surveys can be extended to include information on levels and determinants of perceived ARI morbidity and mortality.

In the fourth place, cause-of-death registration systems need to be developed further and their accuracy and completeness of coverage need to be improved. These systems are important because of the information they contain on levels of ARI morbidity and mortality; they can contribute relatively little to our knowledge of socio-economic determinants of ARI.

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## Chapter 53

# The Victorian poliomyelitis epidemic 1937-1938

Barry Smith

Between July 1937 and July 1938 Victoria suffered its worst epidemic of poliomyelitis. Two thousand and ninety-six cases were reported, 1300 of them in the Melbourne area. There were 109 deaths. These represent a notification rate of 11 per 10,000 population and a case mortality rate of 5.1 per cent. The infection, by a virulent strain of type I, Brunhilde, resulted in an extraordinarily high incidence of paralysis cases, 96 per cent, for example, of those notified in the city of Melbourne. This high rate was the more terrible because nearly 50 per cent of cases were affected in the bulbo-pontine and upper spinal regions.<sup>1</sup> By 1940, 81 per cent of a sample of 59 paralysed patients were 'still under treatment' but 'improving'. Beyond that I have no information. But the long-term costs in narrowed life chances, anxiety, and private and public monetary outlays must be prodigious. During the epidemic the direct contribution by the Victorian government and Melbourne City Council was £83,500, to which the Commonwealth added £10,000; another £13,500 came from public subscriptions (*Victoria Parliamentary Debates* cciv, 622:A.A. Dunstan). If we extrapolate from the outcomes of the less severe epidemic of 1918, whence 10 per cent of all sufferers remained invalid pensioners for the remainder of their lives at an annual cost of £18,000 each, the public costs of the 1937-1938 epidemic together with the milder outbreaks of 1949 and 1950-1954 amounted to about £300,000 a year in 1955 (*M.J.A.*, 1931; *Argus*, September 11, 1937; Colville, 1955:27). The impact on private charity was also heavy. The Children's Hospital had suddenly to raise about £12,000 for additional beds and £15,000 to pay for their inmates' intensive care. The Victorian Society for Crippled Children spent £8,000 on two new day clinics and over £800 a year on their running expenses (*Argus*, August 25, 1937). Quite apart from the sorrow and anxiety engendered in stricken families, the financial burdens were formidable. Home visits by general practitioners cost 10/6. The government installed a reimbursement scheme for parents unable to meet the fees but its arrangements were tortuous and it seems to have given little help (*Argus*, July 27, 28, 1938). Parents and children thronged the free or nominal payment outpatients' ward at the Children's Hospital, probably turning it into a major locus of infection.

Victoria was unprepared for the outbreak. It broke suddenly on a relatively disease-free community, except for the usual influenza, during a cold, calm winter. In July the weekly notifications climbed from the regular seven or so to 30 and then, by late September, to over 60. The peak of 75 notifications came in early January 1938. Everything about the epidemic seemed anomalous. The earlier outbreaks of 1908, 1918, 1925, 1928-1930 and 1933-1934 had death-rates varying between 4 and 13 per cent, but recorded much lower paralysis rates. Generally they had occurred during hot summers and autumns and about two-thirds of confirmed cases were aged under three. Paralysis was commonest in the legs. Attacks

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<sup>1</sup>*Victorian Year-Book*, 1937-38:107-108; *Lancet*, 1938:742; Bull, 1939:44-45. The totals vary slightly between accounts.



among older children and young adults tended to be reported more frequently in the countryside and to be distributed sporadically. Males usually comprised the majority of victims, sometimes as much as 75 per cent (Stephens, 1908; *Victorian Department of Health*, 1936). Between epidemics there was a steady trickle of notified cases, usually mild and difficult to distinguish from other childhood fevers and upsets, with no lasting damage.

Until the 1937 attack Australians plumed themselves on their infantile paralysis record. They readily accepted the medical authorities' view that it was a hygiene disease that manifested itself in nations with advanced standards of living. They had almost eradicated major killers spread by droplet or waterborne organisms, with the exception of pulmonary tuberculosis. Infantile paralysis seemed to have moved into their vacated niche. Even the Victorian outbreak was thought to have come from New Zealand. The first epidemic had been described in Sweden in 1880 and the disease had emerged since in Germany, Denmark, the eastern United States, New Zealand and Australia. Its reported prevalence had risen steadily in these countries, while the backward states of eastern Europe, South America, Asia and Africa had yet to register epidemics.

The prevailing beliefs about the mode of transmission were integral with the conception of polio as an opportunist newcomer to wholesome communities. Echoing Flexner, Macfarlane Burnet on behalf of the government's ad hoc consultative committee of experts told Victorians through the wireless and the press in mid-August 1937, when the number of notifications had reached 100, that 'laboratory work in the United States left practically no doubt that the virus struck through the nose, reaching the olfactory nerve, whence it penetrated the spinal cord'.<sup>2</sup>

Droplet infection made the process seem comparatively clean and left nobody particularly responsible. Macfarlane Burnet's assertion rested on very shaky experimentation. He and his colleagues were aware of this but did not admit it, nor indeed did they have the means to challenge the reigning hypothesis. Flexner and his successors had 'proved' their hypothesis by upending rhesus monkeys and forcing polio virus into their nasal tracts as far as the olfactory nerve. Ten monkeys were involved: half developed infantile paralysis. Monkeys whose olfactory nerves were cut or crushed did not develop polio (Macfarlane Burnet, 1940:326-328).

The uncritical reliance on this droplet-nasal path of infection had disastrous consequences for the handling of the epidemic. By analogy with smallpox or measles, quarantine loomed as the basic prophylactic measure but for reasons I shall introduce later, quarantine was not imposed. The experts settled on more socially and politically acceptable procedures. One obvious one was nasal spraying, again adopted from its American advocates, and currently being tried in Toronto where there was also an epidemic. Five sprays were tried, zinc sulphate in 1 per cent solution in saline, picric acid, alum, tannin, mercurochrome. Phillips, the Sydney medical school teacher who brought the news back from the United States, declared that his American mentor, Peet, at Michigan, had proved that one spraying conferred 'absolute immunity ... for ... one to two months' (Phillips, 1937). The procedure could, he added, cause 'slight discomfort', involving the loss

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<sup>2</sup> *Argus*, August 18, 1937; cf. Webster (Melbourne Children's Hospital) and Featonby (Chief Health Officer for Victoria), *M.J.A.*, 1937a:449-451. I have been unable to trace the records of the consultative committee. They are not listed in the Victorian Public Record Office or in the Department of Health. The personal papers bequeathed by Sir Macfarlane Burnet and Dame Jean Macnamara do not include them.



of the sense of smell for a fortnight. It soon emerged that zinc sulphate also caused burns and terrible headaches. Medical critics immediately responded that spraying was showing no good results in Toronto. An earlier campaign in Alabama in 1936 had 'not [been] impressive'. Helms pointed out that there was no proof that the zinc sulphate impaired the virus or activated the precipitation of proteins to counter the organism (Wade, 1937; Steigrad, 1938:802-803; Fisher, 1967:62). Featonby, Chief Medical Officer and a member of the consultative committee, declared that he was against spraying. British doctors, he said, had rejected it as possibly permanently harmful (*Argus*, August 24, 1937). Nonetheless, by late September as new notifications from the slum suburbs were running at about 12-15 a day and the numbers on respirators and deaths were climbing, Featonby announced a trial to begin in the industrial suburb of Collingwood. His new policy was 'not inconsistent', he said, 'with the warnings previously issued to patients that ordinary spraying ... was useless' (*Argus*, September 22, 1937). The campaign soon petered out. The procedure was voluntary; few Collingwood parents brought their offspring to the clinic (Macfarlane Burnet, 1968:162). Earnest middle class parents who tried to spray their children's nostrils at home found it almost impossible to manipulate the atomizer and the struggling child to direct the spray into the upper nasal tract, especially as the battle had to be renewed at 'moderately frequent intervals'. General practitioners also cried off. The procedure was time-consuming and distressing and the results were nasty (Steigrad, 1938: 802-803).

The failure of the spraying venture led the consultative committee to recommend nose clips and masks for children. The premise, apparently suggested by Macfarlane Burnet, was that stopping nasal breathing 'was all that was needed to block the epidemic' (Macfarlane Burnet, 1968:162). Derham, the Medical Officer of Health for the wealthy suburb of Kew, designed a white bakelite clip and issued over 2,000 of them. He suggested that doctors wear them as a model to the populace. Derham modestly proposed that the clips 'had some educative value as they stressed the idea of avoidance of breathing large masses of virus organisms' (*M.J.A.*, 1937d:1055; *Argus*, August 21, 1937). Norris of the consultative committee and the local British Medical Association complimented Derham and pointed out that Kew had no reported cases for a month after the clips came in. The well-drilled children of Kew could cope with the procedure, Derham argued, but he allowed that clips and masks would be 'of little or no use in an industrial suburb like Carlton' (*M.J.A.*, 1937d:1055). The failure of the clips campaign was fortunate. Children breathing through their mouths would probably have ingested even more virus.

The consultative committee's remaining possible prophylaxis was polio serum. The serum was based on fluid drawn from lumbar punctures of confirmed cases. It had been given by injection since 1925 in Victoria both as a preventive immunizing agent and in therapy for convalescent patients. Its main advocate was the pugnacious Dame Jean Macnamara. She wanted the consultative committee to give it yet another trial. But in early August 1937 the majority opposed her. The medical bureaucrats, Featonby and Merrilees, held to their claim that the epidemic was subsiding. Macfarlane Burnet argued that there was no clear evidence that serum protected or rehabilitated cells. Moreover, as the virus was 'entirely neurotropic and did not cause a systematic infection ... the use of ... serum was unjustified' (*Argus*, August 10, September 9, 1937; *M.J.A.*, 1937a). Disappointment with the serum in the 1933-1934 epidemic had led the Victorian Health authorities to let their stocks run down. Undaunted, Macnamara wanted old stocks from 1934 to be released to general practitioners to give serum if they wished. It emerged



towards the end of the Victorian epidemic, in May 1938, that 'friends and relatives of medical practitioners' were having serum treatment. Wealthy parents were demanding it for their children. The quality of the serum was dubious, the dosage was unfixed, the indications for suitable recipients were unclear, yet doctors gave serum 'to the child who had his medical attendant worried'. Serum treatment encouraged parents and patients, but there is no evidence that it had any decisive protective or curative impact (*M.J.A.*, 1938b; 1940:811).

In its opening phase the epidemic ran true to the theory. The first cases came from respectable Ormond, Carnegie, Bentleigh and Chelsea. These were relatively newly built communities along the suburban railway lines about 7-10 miles south-east of Melbourne. The inhabitants were lower middling 'business' class people, occupying houses worth about £1,000 each. Their suburbs were neither 'industrial' nor 'residential' like bosky Kew. Many of the dwellings stood on quarter-acre blocks enriched by 'good gardens', interspersed by market gardens and farmlets (*M.J.A.*, 1937b:652; Merrilees, 1937:1425). The girl aged six from Carnegie who was one of the first to die, travelled by bus each day to Ormond to attend a private school (*Argus*, July 16, 1937; Merrilees, 1937:1418). I am told by a playmate who remembers her that her family, indeed those of all the Carnegie victims, were 'very self-respecting'.

The comparatively uncrowded bungalows, standing in their fenced yards, with readily traced patterns of school contact made it easy for the authorities to close the local schools in advance of the coming spring vacation and isolate children in contact families. Investigating teams were pleasantly surprised to find that friends, even apparent strangers, readily if covertly, listed their neighbours' contacts, visits and outings. 'Spiteful chatter', they came to prize as routinely accurate (Merrilees, 1937:1417). On 27 July the consultative committee issued the first of a series of reassurances that the epidemic was contained and would soon disappear. They reminded anxious parents that the 27 confirmed cases only equalled the number of road accident deaths since the epidemic began and that the seven child deaths from diphtheria, the average monthly toll, greatly exceeded the single polio death (*Argus*, July 28, 1937). Meanwhile, picture theatre proprietors in the district voluntarily intermitted their Saturday afternoon matinees. The health authorities' only immediate problem was to try to prevent ambitious parents enrolling their children in schools bordering the declared region, or sending them to relatives in the country and entering them in the local school. Fearful of the backlash, the health authorities and government never sought effective regulations to end this breaking of quarantine.

By early August the disease had jumped to Ascot Vale, to the north west of Melbourne about 14 miles away from the Ormond area, and had appeared among the port community of Williamstown. On 5 August a case was notified at Woodend, a select retreat 40 miles north of Melbourne. The child had arrived secretly from the middle class suburb of Brighton nine days earlier. The Woodend council, led by its health officer, declared the district out of bounds to Melbourne visitors, blocked the highway and railway station and turned back suspect children (*Argus*, July 30, 1937). By now there were 52 cases and six deaths. State schools and some private ones were closing suddenly in ever-widening catchments. Parents showed little overt panic, but they were afraid. Their protectors seemed muddled and ineffective. Newspapers began to print letters from querulous readers. Perhaps polio was caused by overexposure to the sun while sunbaking in the new abbreviated swimsuits, asked Tillie Gerson: in frosty mid-July? (*Argus*, August 14, 1937). VJK



of lower-middle-class Oakleigh, adjacent to Carnegie and Ormond and caught up in the epidemic in late July, suggested that cats transmitted the virus, presumably by analogy with rats and plague. VJK had noticed that cats had been sick during the previous polio outbreak in Oakleigh in 1936. Featonby rejected the hypothesis, adding, wrongly, that only monkeys were natural carriers of the virus. Local politicians in Brighton, where the disease erupted in early August, blamed the foul Elster Creek for carrying or giving off the virus. They wanted the creek put underground and demanded state government money for the job: the money was not forthcoming. But one good result of public anxiety about suspect water was the closure by the local councils of some municipal baths, for instance those in Malvern and the City of Melbourne, and widespread parental prohibitions – not, it appears, publicly endorsed by the consultative committee – on swimming in creeks and dams. These actions must have limited infection, even if they were prompted by wrong reasons (*Argus*, July 27, 28, August 10, December 7, 1937; March 12, 1938). After the death from polio of a man aged 57 at Coffs Harbour in northern New South Wales, the townspeople agreed that the infection must have been conveyed in letters he had received from Victoria some days before he fell ill. He had had no recent contact with Victorians. His case did not square with the contact-droplet theory and some doctors, unspecified in the press report, began to hedge their explanations. ‘There was no proof’, they were quoted as saying, ‘that people could be affected by letters, but so little was known of the disease that any precaution in regard to letters would not be misplaced’ (*Argus*, August 6, 7, 1937).

About the time this case was notified, the New South Wales government asked the Commonwealth to declare Victoria an ‘infected area’ under the Federal Quarantine Act. The New South Wales government, after the Commonwealth refused to act, gazetted regulations forbidding children under 16 entry from Victoria without a medical certificate stating that they had had no contact with infantile paralysis for the three preceding weeks. The New South Wales Railways were ordered not to issue tickets to children without certificates (*Argus*, August 25, 1937). Canberra dwellers, bereft of local government, sought through their community hospital board to ‘regulate’ the coming of children from Victoria. W.M. Hughes, the Federal Minister of Health, ignored them. He remarked of the New South Wales request that Commonwealth quarantine between the states had not halted the Spanish Influenza epidemic of 1919 and that he was not intending to launch a second failure. New South Wales stationed police at border crossings and turned back uncertificated children. They even stopped the Governor-General’s Rolls Royce (*Argus*, August 18, 19, 21, 1937).

Derham’s reference to the inutility of nose clips in Carlton exposed the authorities’ bafflement at the course of the epidemic. By the first week of August cases were notified in the inner industrial suburbs around Melbourne, Brunswick, Carlton, North Melbourne and South Melbourne. Thereafter the children of these districts suffered the worst of the epidemic. South and Port Melbourne had a peak of nearly 40 cases a week during August 1937, Carlton and the City of Melbourne had peaks approaching 30 weekly cases from August to October 1937 and around 20 a week to early December, while the Brunswick, Coburg, Preston area peaked in November-December at over 30 weekly cases. By February 1938 the City of Melbourne had 160 cases, Coburg 87, Footscray 85, South Melbourne 82, Preston 58, Fitzroy 56 and Essendon 46. Two other severely depressed suburbs, Collingwood and Richmond, came through more lightly with 40 and 26 cases respectively. The worst hit rural centres were Mildura with 67 victims and Wonthaggi with



19 (Victorian Department of Health, *Health*, July-December 1937:1446). The epidemic also persisted in most of these places until its end generally in Victoria in the winter of 1938 (Macfarlane Burnet, 1940:335; *Victoria, Parliamentary Debates*, cciv, 816:N.A. Martin).

Even within the respectable suburbs, as the epidemic grew, Merrilees and his investigators noticed that the

majority of cases occur[red] in the worse class houses and the frequency with which the disease picked the least cared for house in the street was more than coincidence. At any rate the cases were now spreading to the 'slum' pockets and had been present in the form of ... minor sickness before the first cases occurred (Merrilees, 1937:1419).

Bull, the leftish medical officer to the Melbourne City Council, reflecting on her experience in the inner city, arrived at a similar conclusion. The *Medical Journal of Australia* found her observations intriguing enough to warrant an editorial:

This epidemic did not uphold the belief that the disease attacked chiefly the healthy, robust, well-cared-for children living in uncrowded suburbs. Actually, the overcrowded areas where undernourishment was prevalent suffered rather more than ... areas that enjoyed better conditions of living.

Yet every Victorian epidemic back to 1908 had shown its highest incidence in the Melbourne slums (M.J.A., 1940:811; Stephens, 1908:42; M.J.A., 1918:292).

In 1937-1938 the attack-rate per 1,000 children under 15 ranked districts by their poverty. At the head stood Port Melbourne at 11.6, then came Melbourne City at 9.2, South Melbourne at 8.6 and Fitzroy at 7.7, compared with Essendon at 4.4. Moreover age-incidence peaked at 4-5 years in Melbourne City, in adjacent slum districts at 6-7 and in the outer suburbs and rural areas at 7-8.<sup>3</sup> Thirty-nine per cent of the total City notifications, including 'abortives', were aged 5-9, against 38 per cent under 5, 15.5 per cent 10-15 and 7 per cent over 14 (Bull, 1939: 25). Of the 174 confirmed severe cases in the City, 77 or 44 per cent came from families 'in very poor circumstances, either living on sustenance or casual labour'; 68 or 39 per cent 'were receiving either the basic wage or a little over, but were for the most part economically insecure, through uncertainty of employment and accumulation of debts'. It appeared too, that many of these families were large. Only 23 cases, or 13 per cent occurred among families in 'what might be called comfortable circumstances'. This finding sorted with that of the contemporary epidemic in Ontario, where the investigators reported that 34.3 per cent of cases were in families of 'low ... economic standard' suffering overcrowding, 57.6 per cent were 'medium', and only 8.1 per cent were 'high' (Bull, 1939:30). We do not know what proportions of the total population these categories represented; the calculation does not appear to have been made.

Polio deepened their distress. Adolescent siblings of victims, often the sole income-earner where the main bread-winner was unemployed or departed, were placed in isolation and lost their jobs. Their places were not held open and they received no compensation. Parent bread-winners, men and women, were said to have been boycotted by their

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<sup>3</sup> Bull, 1939:27, 30. Her searching, path-breaking report, together with the Ontario study, passed unnoticed in the international medical literature, although several lesser Victorian contributors were widely quoted. Bull's *Poliomyelitis* is a rare volume: I have been able to trace only five copies in Australia and one in the United States.

workmates and forced either to stay away or be sacked. Mothers had to forsake their factory work to look after their stricken children. The Melbourne Ladies' Benevolent Society supplied food parcels. Shopkeepers and the self-employed were boycotted when the news got out that they had infantile paralysis in the family (Bull, 1939:31). Sustainance workers had their wages reduced to 'intermediate' rate while they were isolated after contact with a case (*Argus*, September 28, 1937). Even middle class parents could not cover the doctors' and masseuses' bills (*Argus*, July 22, 1937), and families on sustainance or the basic wage could not afford the train fare to visit their children after the latter were removed to the Frankston Orthopaedic Home (*Victoria Parliamentary Debates*, cciv, 237:B. Barry).

This class incidence hardly squared with the theory of early mass exposure and subsequent immunization. The consultative committee, having closed the schools in the Ormond-Carnegie-Brighton district, the first time such an expedient had been tried in Victoria during a polio outbreak, wavered about closing schools in the slum districts. Parents in those suburbs were too feckless to guard their offspring, backyards were too small to hold them and the community traditionally occupied the streets. Closing all their schools and kindergartens would turn them loose 'through the state' (*Argus*, August 6, 1937). Implicit in this decision was the old upper class conception of inner city rookeries as reservoirs of disease. If rampant person-to-person droplet infection was to continue, it was better, as Macfarlane Burnet explained on behalf of the consultative committee, that it be contained in its own plague-spots, particularly because carriers could not be detected (*Argus*, September 9, 1937). Basically, polio spread because parents let their children run about promiscuously, Fitzgerald, the Education Department Medical Officer explained, while defending the decision to leave some schools open. Such schools as had been closed were 'only ... a "gesture" to restore confidence ... Infantile paralysis could not be attributed to overcrowding, or to adverse social conditions, and affected children in homes of all classes' (*Argus*, July 16, 1937).

The assumption that poliomyelitis was a disease that affected advanced communities went back to Medin's reports on Swedish epidemics in the 1880s. But the absence of curiosity about the class incidence of the disease is striking. Only one paper, that by Sabin at the First International Conference in 1949, refers to American evidence that the poor suffered most in epidemics in 1935-1936, and then only in the context of reviewing passive immunization. Class differentials in incidence were not the subject of any major paper or discussion at any of the subsequent four international congresses to 1961. Epidemiology in the 1930s and 1940s, as the polio experts conceived it, was the exploration of viral relationships, secondly the relationship of viruses to their human and animal hosts, and hardly at all the social arrangements which rendered those human hosts vulnerable in varying degrees. No effective preventive recommendations came out of these elaborate, expensive masquerades. Their deliberations were vitiated by a want of sociological imagination. The American claims about the 'classlessness' of the disease mainly rested on notifications in New York City back to 1907 that blacks had markedly lower incidences of polio and beri-beri than presumably more affluent whites. Macfarlane Burnet in 1940, drawing on his discovery of the three main types of polio in 1931, posited that the virus was becoming increasingly neurotropic and that infection by one strain did not confer antibody immunity to other virulent strains (;Dale, 1928:259-260; M.J.A. 1930; Helms, 1941:720). He also claimed that polio was spread almost entirely by contact among children and that asymptomatic infection of adults and their consequent role as carriers was becoming rare.



Epidemics occurred during 'crisis periods in the virus-host relationship', when virus strains changed in virulence and upset the dominance of the usual mild strains which caused mass subclinical polio in youngsters and conferred immunity.<sup>4</sup> This explained the sudden emergence of severe outbreaks involving paralysis in children under 5, but it did not account for isolated cases in depressed areas in the countryside or the gradually rising incidence among children 5-10 or among victims over 14.

The main block to understanding was the false idea about the main pathway of entry for the virus. Kling, a Swedish researcher, had isolated polio virus from intestinal excreta in 1912, and proposed that the virus entered through the digestive tract (although he then suggested the nasal tract), but Flexner, Draper, Brodie and their followers had settled for nasal entry and they held the field for the next 40 years. Paul, the historian of poliomyelitis, remarks incuriously that why this happened is 'not at all clear' (Paul, 1971:240-241). One plausible explanation is that polio experts, especially in the United States where a president was a victim, refused to see the disease as a 'dirt disease'. Moreover, so far as polio research was concerned, America was the metropole and Sweden and Australia formed the periphery. The sad fact is that until the advent of Salk and Sabin, American experts got it wrong. Moreover in the race for the vaccine and the riches and Nobel Prize it promised, the Americans became increasingly secretive.

Even before the epidemic began, a paper had appeared in the January 1937 issue of the *Journal of the American Medical Association* which should have prompted the Victorian consultative committee to think about other possible entry pathways for the virus than the nose. Sabin and Olitsky (1937) reported finding only dubious histological evidence in the olfactory bulbs in infected monkeys that the virus had passed that way. They suggested that 'nerve roots elsewhere are equally important portals ... by way of the blood stream, to their ganglia'. So far as I can discover, this paper went unnoticed in Australia until May 1938 when Macdonald of Sydney quoted it as worth considering (Macdonald, 1938:798). By an odd chance, Macfarlane Burnet and his team at the Walter and Eliza Hall Institute in Melbourne came to build on the Sabin-Olitsky finding in 1939. Their supply of Indian rhesus monkeys, the standard animal used in polio virus research, was cut off by the unexpected imposition of a close season in Calcutta. They settled instead for cynomolgus macaques from Singapore. Their larger mouths enabled the Hall team to infect them by swabbing the backs of their throats with the Victorian epidemic type virus. This finding prompted them to insert the virus in two monkeys' intestines by direct incision. Both got polio. They then found that in four of the seven experimental monkeys the virus had multiplied in the lymph glands: so 'the virus must have multiplied in the intestine before it moved in one way or another to the spinal cord' (Macfarlane Burnet, 1968:162-164). Robertson, Macfarlane Burnet's colleague, strengthened these revisions by showing in early 1940 that 10 of 11 autopsies of persons who had died from polio in 1937-1938 had no

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<sup>4</sup> Burnet, 1940:331; Sabin, 1949:23-24. The history of epidemiological misunderstanding can be traced through Draper, 1917:11, 13-22; Department of Health of New York City, 1917:186. Here the definitions of 'sanitary conditions of homes' ranging from 'bad' to 'excellent' remain unspecified; as do 'financial conditions' of about 25 per cent of the families affected, ranging from 'poor' to 'well to do'. Vulpus (1912) building on the Swedish work, posited entry through the alimentary canal, but his work seems to have gone unnoticed in the English-speaking world. Payne (1955) is foursquare in the American tradition of the classless epidemiology of the disease; his paper is quoted approvingly by Melnick, 1982:213. Flexner's work with various collaborators is reported in numerous papers in the *Journal of the American Medical Association* between 1909 and 1913.



inflammation of the olfactory bulb. He too concluded that the virus might reach the central nervous system by routes other than the olfactory path (Robertson, 1940:157-158). It was these findings which prompted Macfarlane Burnet to his second major contribution to the conquest of poliomyelitis: in 1939 he and Lush first passed polio virus through human foetal tissue culture (M.J.A., 1941). During 1940-1941 Sabin and Ward confirmed the hypothesis that the mouth was the main portal and the alimentary tract the site of attack. By May 1946, during yet another Victorian epidemic, Webster took it as beyond dispute that the virus was conveyed in faecal particles although he still confessed to amazement at :

the facility and regularity with which the virus ... had been demonstrated in the faeces, not only of subjects of the disease, but of household contacts of such patients ... [also] the virus ... had been detected in flies – both rural flies which frequented open latrines and flies in modern urban districts (M.J.A., 1946:638).

Some old hands remain sceptical. McLorinan of Fairfield Infectious Diseases Hospital 'was sure that ... any of those who saw the 1937 epidemic ... [would not be convinced] that excremental spread played any significant part'. He saw no reason to be worried about the cleanliness of drinking water and milk. Personal cleanliness, washing hands after going to the lavatory especially, was an obvious precaution but no particular instructions about these matters were issued in 1945-1946. The consultative committee's position remained purely reactive: they were to advise on treatment, after-care and rehabilitation. Macfarlane Burnet owned that no one knew what advice might be effective. Yet as far back as 1928 Dale, medical officer to the Melbourne City Council and a member of the consultative committee, had remarked the 'known infectivity of faeces' (M.J.A., 1946:638-639; *Argus*, August 10, 1945; January 24, May 30, 1946).

By yet another bizarre circumstance in this story, the faecal transmission theory and the effectiveness of simple precautions were proved by a mass experiment in Western Australia in early 1954. So far as I know, this proof remains unique. In October 1953 notifications in Western Australia suddenly jumped from the normal 5 per month to 20, with a high paralysis rate, and by definition that amounted to an epidemic. The virus was the nasty Brunhilde strain. Notifications steadily rose, reaching 62 in the third week of March 1954. This spelt disaster, because the newly crowned Queen Elizabeth and her consort were due in the following week on the final, Western Australian segment of their first royal tour; a tour that had been a triumph in the eastern states. There was talk of abandoning the Western Australian visit. The state Labor government was outraged at the rumour. All West Australians, declared the premier, A.R.G. Hawke, would resent the 'inconvenience and ignominy' of a cancellation. Women's organizations, reinforced by parliamentarians' wives, were notably upset. Perth had had a boom in millinery, glove and dress sales. Clearly, the royal party was not keen on coming. At Adelaide, ensconced on the royal yacht, *Gothic*, they were subjected to gamma globulin injections by the royal physician, under the mistaken idea that gamma globulin was the same as 'anti-polio serum'. The leaked news of this procedure enabled the West Australian Commissioner of Public Health, Henzell, piqued at being ignored by the royal tour planners, to remark that the procedure was 'useless' and that the royal doctor's high-handedness amounted to an 'insult' to the Western Australian medical fraternity (*West Australian*, 20-26 March 1954. Henzell's 'insult' remark was published on March 20). There had been a rush on gamma globulin in Perth once Western Australians learned that the royals had used it.



A compromise emerged. The *Gothic* was not to be victualled from Perth and the royal party were not to be offered any local food or drink; no scrolls or bouquets were to be offered, no handshakes were to occur; persons presented to the royal couple were to perform their bows and curtsies at one yard's distance and were not to breathe at the royals. The real problem was the children: the tour was diminished if it did not foster new generations of loyalists. The Western Australian consultative council did not shirk the issue. Secretly they carried a resolution on 12 February affirming that

in view of the past experiences of the effect on crowds during poliomyelitis epidemics ... an increase in the number of cases may be expected as a direct result of the Royal Visit; but that the magnitude of this increase would be minimised if the precautions advised by this Council are conscientiously observed (*Western Australian Parliamentary Papers*, 1955, vol. 3, appendix viii, 56).

The Public Health Commission seconded the government in pressing the editor of the *West Australian*, who needed little persuading, henceforth to play down the epidemic (*Western Australian Parliamentary Papers*, 1956, vol. 3, appendix viii, 53).

The consultative committee, led by Snow, worked on the basic assumption that faecal particle transmission was the major mechanism. They cancelled all Sunday school picnics, parties and youth rallies. They ordered DDT spraying of school latrines and grounds. They advised against swimming. Still the toll increased. Then they abandoned the mass displays planned for the visitors and planned instead for each school (no school was closed) to form its own 'strongpost' 10 yards from the next school group along the routes taken by the royal car. Each child was issued with a 'health bag' containing food, drink and a drinking vessel, and most important, soap and a towel. Since the meeting of February 12 the Minister of Health had been repeatedly calling for 'the utmost care in hand cleanliness ... parents should insist on children washing their hands before and after visiting the toilet' (*Western Australian Parliamentary Papers*, 1955, vol. 5, appendix viii, 50).

The precautions succeeded. During the royal visit week, despite daily crowds of up to 50,000, notifications fell (they had risen after the earlier uncontrolled influx of children to the Royal Agricultural Show) to 45 and fell again in the succeeding week to 27, in the third week to 13 and thereafter gradually ebbed back to normal. This precipitous fall in case numbers appears to be unique among those Australian, New Zealand, Canadian, Swedish, Danish, French, Italian and Brazilian epidemics whose courses I have been able to trace (Snow, 1940:3-5; Macfarlane Burnet and White, 1972:94).

Perhaps it is indicative of the screening effect of Victorian domestic manners in 1937-1938 that none of Merrilees's investigators, his school teacher informants, parents, Macfarlane Burnet and Macnamara and the rest of the consultative committee – several of whom were paediatricians – Bull, or writers of letters to the editor about sunburn or cats, or politicians associating polio with polluted creeks, raised the question of dirty hands, food and clothes and possible faecal particle transmission. Many houses in the outer suburban and bayside districts where the epidemic began and persisted were unsewered. Country places which had high incidences, notably Mildura, Wonthaggi and Stawell, were also still largely dependent on the pan system. In respectable 'business class' streets and inner metropolitan slums outside WCs were the norm. The inside WC associated with a bathroom or handwashing facilities did not become common in Melbourne until the 1950s. Schools appear to have had no rules about washing hands before eating or coming from the

WC. I cannot recall any from my experience of two Victorian Catholic and three State schools in the 1940s and 1950s. School lavatories, as I remember them, were vile and none of my schools had easy provision for washing hands. Picture theatres, football grounds, churches and public halls were similarly under-provided. Even the Hampton After-Care Home was sufficiently unhygienic to cause a scandal. Meals were served to paralysed children on the open verandahs, where the 'children had to fight the flies for food'. The committee of the Children's Hospital, to which the Hampton unit formally belonged, had refused an architect's recommendation for flywire screens, on grounds of expense: the Hampton Home had been captured by the orthopaedic doctors' enemy, Sister Kenny (*Argus*, February 26, 1938).

This situation helps explain, I think, the anomaly that puzzled Bull and her contemporaries in 1937-1938. Females consistently recorded higher 'abortive' infections, 12 per cent higher in the City of Melbourne, than males. This relationship was reversed with severe, paralysed cases (Bull, 1939:19, 24-25). It seems reasonable to assert that more fastidious girls ingested smaller doses of virus than boys: it was not simply that boys ran about more in the dromedary stage of the disease and made themselves more vulnerable through fatigue. In the distribution by income and class, poor children, sleeping two to a bed in dirty surroundings, with reduced immunity, were subjected to repeated, longer doses at earlier ages than their more fortunate outer-suburban cousins. The theory of mass immunization, covering infection from all three strains, simply does not elucidate these patterns.

Therapy was hindered by shortages of material, therapists and ideas. The severity of the attack on the upper spinal, pharyngeal area caught the authorities unprepared. Despite their experience of a succession of earlier epidemics they had only one respirator available in 1937. Thanks to brilliant work by Burstall, the professor of mechanical engineering at Melbourne University, they received 22 more in five months. To the end of 1937, 79 patients were placed in respirators at Fairfield Infectious Diseases Hospital; 26 of them died. Respirator treatment made great demands on nursing staff, and most appear to have learnt on the job. Given the difficulties associated with the horizontal immobilization of patients in an air-tight steel tank, the 2/3 survival rate is impressive. Some were still confined to the respirator two years later, but the majority emerged with their breathing stabilized after some weeks (McLorinan and Watson, 1937:1123).

Ex-respirator patients joined cases paralysed in the spine, face, and limbs, ordered to complete rest. This procedure was designed both to relax stretched muscles and to enable damaged anterior horn cells to recover. Theoretically, the inflammation was to diminish within five weeks and to clear in eight (*M.J.A.*, 1937a:452; Macnamara, 1946:578).

Rest was enforced by splinting. The arguments for it had remained unaltered since they had been formulated before the turn of the century. As the Americans Bradford and Lovett explained in their standard *Treatise on Orthopaedic Surgery* (1900), the anterior leg and thigh muscles were more severely affected than the posterior muscles in nearly all cases. Hence



after a paralysis of the leg, the limb lies flaccid and nearly powerless, the toes drop, and if the sitting posture is assumed, the knees flex and the legs hang heavily down. As a result ... the anterior muscles are always pulled upon and slightly stretched, while the posterior ones are lax ... Stretched muscles are ... at a disadvantage, so far as recovery goes ... and muscles at rest are much more favourably situated ... Moreover, muscular contraction and subsequent deformity occur only in cases in which a muscle has been allowed to remain for a long time in a shortened or stretched condition. For this reason it is highly important to support and restrain the affected limb in a normal position (Bradford and Lovett, 1900:452-459; cf. Sunderland, 1937:517).

In practice, in 1937-1938 splinting fell short of this over-simplified ideal. Many patients were never closely examined and their particular deformities and needs were never specified on their cards (Macdonald, 1937:799). Charitably, one might propose that surgeons were overwhelmed by the press of patients; yet they are not recorded as complaining of that. The shortcomings seem to have arisen from inattention and paucity of splint makers, nurses and masseuses. Splints were commonly too heavy and stressed the body. Patients were not moved often enough: their back muscles and buttocks atrophied. The splints, wood, iron, aluminium, celluloid, plaster, generally arrived after weeks of delay and turned out to be wrongly shaped 'because of the inevitable lack of co-operation between the surgeon and the splint maker'. The straps on ill-fitting splints were made over-tight by busy nurses or over-careful parents (Macdonald, 1937:800; cf. Williams, 1940:153-154).

After three weeks or so in splints, the less severely paralysed cases began warm baths, massage and mild exercises, usually twice a day if the hospital nurse, clinic sister or mother at home could afford the time.

The theory, according to Macnamara, the supervisor of therapy in 1937-1938, was to guide the patient, by mental concentration, to send messages by his cortex to surviving neurones which, before the lesion occurred, may not have been accustomed to functioning together, but which can learn to do so ... When a partially paralysed muscle contracts, it not only improves the nourishment of the fibres, but also the co-ordination of the neurones which supply it, provided that the contractions be not continued long enough to induce fatigue (*M.J.A.*, April 8 1938:562).

We have no way at present of evaluating the long-term results of these therapeutic regimes. A survey of invalid pension records might be enlightening but they are unavailable. After four months of the epidemic, of 318 cases admitted to Fairfield or the Children's Hospital, 183 were in other hospitals or convalescent institutions and 114 were fit enough to be nursed at home (*Argus*, November 8, 1937). The number sent home would have been greater but for the discovery that their home conditions 'were unsatisfactory' (McComas, organizer of north of the Yarra after-care, *Argus*, December 4, 1937). Of Bull's sample of 174 paralysed cases, 15 discontinued treatment: their parents believed them to be 'happier' out of splints. Several, she said, deteriorated badly once they ceased medical therapy. Overall, after 18 months or so 12 were dead, 6 recovered without treatment and 4 moved out of the City's purview. This left 152 cases: 36 of these recovered and were discharged from treatment; 101 remained under treatment, half with good prognoses, the



rest with poor ones for permanent disability. Bull estimated that 28.5 per cent of her patients had or would continue to have 'moderate or severe permanent damage' (Bull, 1939:47). I can recall three skeletal, African-famine-like children strapped to rectangular flat boxes on big wheels, their forms showing through white sheets, pushed by worn women in worn overcoats. The children's faces were chalky pink, drawn taut over protruding teeth. None was still about by the mid-1940s when I entered high school. However, I recall one other victim, both shortened legs in calipers, both arms on crutches, who used a crutch to hit smaller boys seized by his gang and held within his reach. Polio must have soured innumerable lives.

For many parents, patients and politicians the last hope for recovery lay beyond orthodoxy, with Elizabeth Kenny, self-styled 'Sister'. The Victorian epidemic struck while she was embroiled, more noisily than usual, in fights with the medical profession. This large, dominating being, with her loud voice issuing from a mannish face under a big out-of-fashion hat, produced explanations of her therapeutic practices that varied over time, but essentially they turned on the proposition that 'spasm' was the expression of the contraction of strong muscles, conflicting with weak ones. Both sets of voluntary muscles were out of control, not because of destruction of the spinal cord or cells, but because of their 'alienation' from the brain. The nerve paths to the brain must be intact, otherwise there could be no spasm; the need was to educate the patient to regain control of the nerve paths, and to overcome the fear of pain in re-educating the muscles back to 'normalcy'. Her theory was simplistic, sufficiently opaque to be beyond rational attack, and optimistic (Westacott, 1949:13; Kenny, 1946).

Sister Kenny's practice was basically independent of her expositions. She removed each new patient's splints and examined him or her thoroughly and felt each muscle. Then she ordered him or her to be placed supine on a firm mattress, with the damaged part supported by fracture boards or sand bags. The arms and legs were carefully extended and supported by pads which were regularly moved day and night. The hips were rotated daily and from the outset patients spent at least 30 minutes a day in a stretching apparatus. Valgus or varus in the knees or ankles were pulled straight by bandages and sandbags. Each patient had a daily warm bath, followed by a cold spray, and then further exercises, 'passive' at first with the therapist pressing against the muscle, then 'active' as the patient gained strength and began to direct his or her mind to move the head, neck, trunk or limbs. Patients were encouraged to get up and walk as early as possible. During rest periods they were sponged with hot compresses or water bottles.

The results were mixed, but unquestionably better than those obtained from orthodox splinting; although orthodox therapy also included warm baths, exercise and massage. Kenny's patients, an official investigative team reported of her methods at Hampton Convalescent Home, left patients less stiff, less deformed and with better circulation (Foster and Price, 1939:321-323). Above all, she built their active will into the healing process and gave them hope.

Still, most orthopaedic practitioners loathed her as a charlatan. She was a laywoman, with no formal medical or nursing qualifications. Her theories were nonsensical. She won powerful politicians and wealthy men to her side, including Hughes, the Federal Health Minister, Labor MPs in Victoria, led by Barry, and Dyason, the magnate who offered to buy a hospital for her (*Victoria, Parliamentary Debates*, ccii, 450-456:B.Barry; *Argus*, November 11, 17, 1937). The doctors, through the British Medical Association, counter-attacked in three



ways. In Victoria, the consultative committee, despite the favourable official report on her Hampton work, resolved to keep an 'open mind'. Kenny called their bluff and threatened to withdraw her therapists from Victoria. Amidst public uproar the government intervened, overrode the consultative committee and gave Kenny added staff and facilities (*Argus*, November 9, 1937; January 1, 8, 1938). In Sydney, the official investigation, conducted at the government's insistence by a reluctant profession, found again that her methods were more successful than theirs. They ingeniously made a take-over bid. The government, they recommended in November 1937, should create a new 300-bed open-air hospital where Kenny methods would be used, under the direction of 'consulting orthopaedic surgeons'. The government pigeon-holed their expensive and impudent bid (*M.J.A.*, 1937c:893; Macdonald, 1938:799). Her methods demanded a system of intensive care that was unthinkable in the hospital system in the 1930s.

In Queensland, where the populist Labor government had espoused Sister Kenny's crusade and ordered her access to public hospitals over professional opposition, the doctors got their own back with a royal commission which wholly condemned her methods in January 1938, just when she was embattled in Victoria. It was a malicious, ill-founded document, but it drove Sister Kenny out of Australia (*M.J.A.*, 1938a). Ironically, she immediately began to win on the world stage. By 1940 her methods were sweeping Europe, and splinting and surgical intervention was quietly disappearing in Australia. Publicly, doctors still patronized and rejected her. By the late 1940s opinion polls showed her to be, with Eleanor Roosevelt, the most admired woman in the world (Zanoli, 1955:411; Cohn, 1975:229-230, 236).

Thirty years on, after he and his committee had tried to ignore her in 1937, Sir Macfarlane Burnet admitted that Sister Kenny had helped reduce medical defeatism about polio. She showed that patients and parents could be led to help themselves. 'For one reason or another the orthodox superstition of immobilization by splinting vanished' (Macfarlane Burnet, 1968:166).

Seemingly neutral, objective epidemiology and therapeutic regimes may sometimes be, as they were in Australia during the polio years of the 1930s, 1940s and early 1950s, the continuance of politics by other means. In the 1930s and 1940s the dominant, ill-founded assumptions about the mode of transmission of infantile paralysis and its classless incidence wrecked chances of preventing or containing it. In 1954 the Western Australian authorities took an enormous gamble with their citizens' lives. Fortunately they succeeded in their school, newspaper and radio campaign to make children wash their hands before eating and after going to the WC. They cracked the local easy-going norm and Australians of all classes apparently became more likely than not to wash their hands if the means were readily available, as they generally were in the prosperous domestic 1950s and 1960s.

In 1938, too, by way of that cathartic instrument, a Queensland Royal Commission, the Australian medical chiefs washed their hands of Sister Kenny, the eccentric but successful therapist. Their conflict, shrouded in the locution 'for one reason or another', was but another episode in the professional war by other means.

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## Chapter 54

# Acute respiratory infections: history, medicine and behaviour

Robert Douglas

### Introduction

There is a huge range of micro-organisms known to be capable of invading the respiratory tract of humans, proliferating there and producing a number of symptoms and signs ranging from sore throat to cough, to pneumonia and general systemic illness. The clinical syndromes which result display considerable overlap between infecting organisms, and it would seem that some organisms prepare the way for secondary invasion by others. In recent years epidemiologists have regarded the entire family of diseases as a single group and referred to them collectively as ARI (Acute Respiratory Infections). They include entities which have previously been considered separately but are often not strictly separable, such as measles, pertussis or whooping cough, diphtheria, pneumonia, bronchitis and bronchiolitis, croup. Tuberculosis is also a common respiratory tract invader and the symptoms of tuberculosis at the beginning are often indistinguishable from those of the other respiratory tract infections. Because of its chronic nature and the different strategies employed for its control, it is usually not included in the category ARI.

The clinical study of this group of diseases has been very productive and resulted in the development of highly effective vaccines against some of these organisms as well as broad spectrum antibiotic agents which can contribute to cure of established bacterial disease. Such agents are not available for many of the agents which infect children in developed countries, and vaccine development for these predominantly viral agents is in an early stage of development. The range of potential agents which can infect the respiratory tract under appropriate circumstances is immense. Medical preoccupation with the need precisely to determine the infecting organism and its clinical effects has often obscured the broader social and epidemiological issues which emerge when the entire family of acute respiratory infections is viewed as one.

### The history of ARI mortality in relation to modern preventive and therapeutic interventions and to general mortality decline.

McKeown (1976) has traced the history of mortality from respiratory infections in England and Wales from the middle of the 19th century, and convincingly demonstrated that most of the decline preceded modern medical interventions. Graphs from his book, *The Modern Rise of Population*, are shown in Figure 1. While the introduction of specific antitoxin and vaccines appeared to have significant impact on specific death rates from diphtheria, his data did not leave him persuaded that antibacterial drugs or vaccines were markedly contributory to the broad change that was already well in train before their introduction.

Gordon (1976) undertook similar analyses for Australian respiratory mortality. His graphs are shown as Figure 2a and 2b. The decline here was a little later than that seen in Britain and there was substantial mortality still remaining when antibiotic drugs were introduced. He estimated that about half of the dramatic reduction in death rates from respiratory



infections which followed the introduction of antibiotics could be attributed to 'wonder drugs'. Like McKeown, he stressed the importance of nutrition as a likely determinant of the non-medical mortality change.

Figure 1

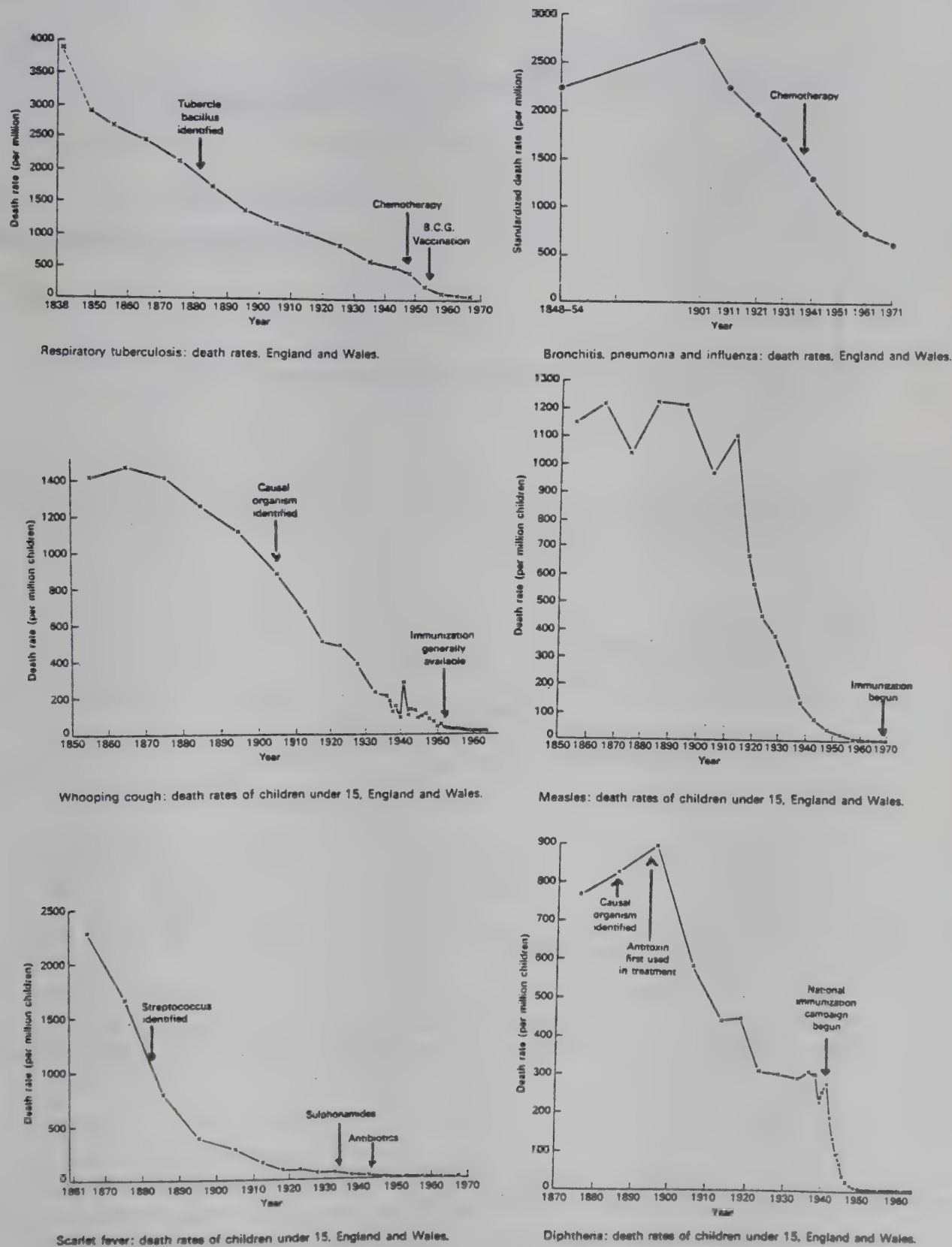


Figure 2a  
Deaths from respiratory diseases (tuberculosis excluded) in first year per 1,000 live males births per annum, Australia. 1909 - 1960

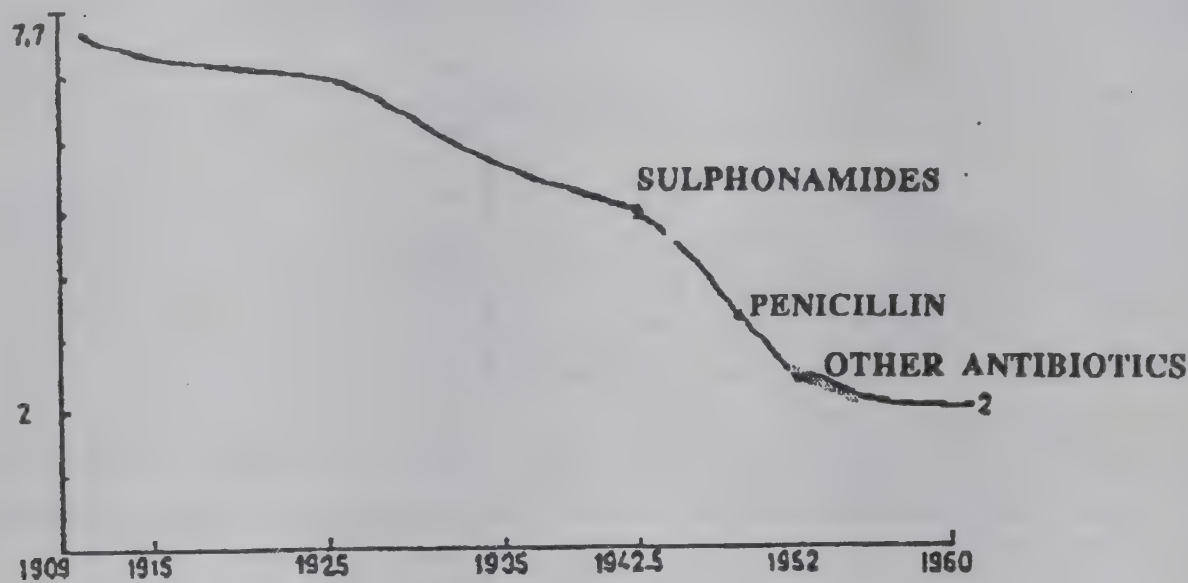
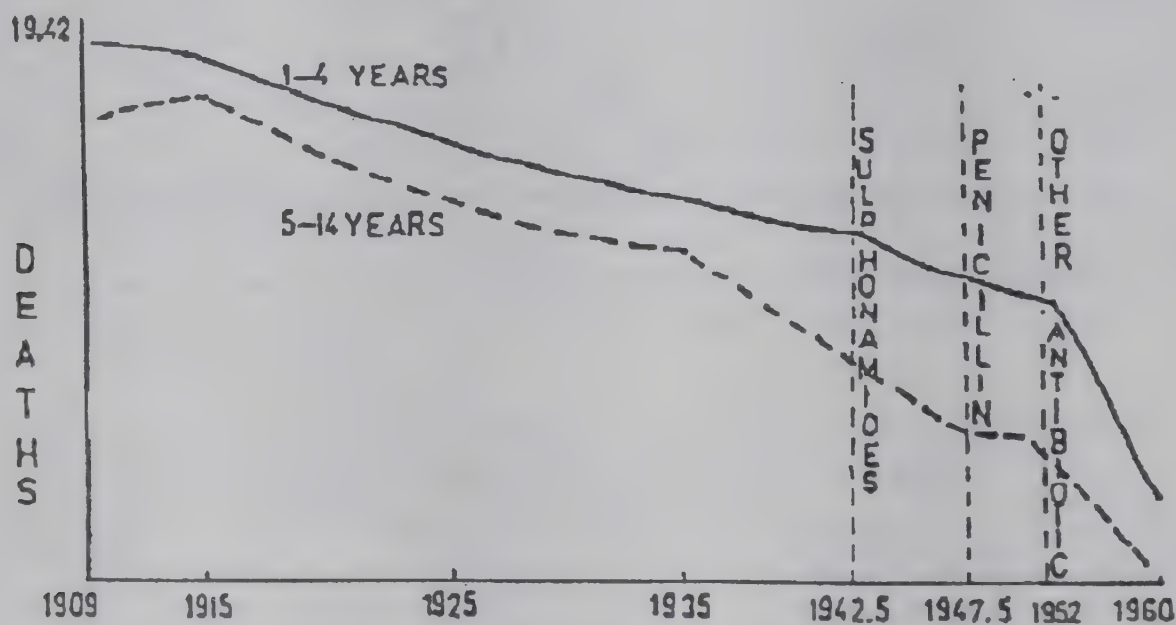


Figure 2b  
Deaths from respiratory diseases (tuberculosis excluded ) per 10,000 males in age groups per annum, Australia. 1908 - 1960



Source: Gordon, 1976

Riley (1985) in a review of Preston's (1976) data asserted that decline in mortality from respiratory infections had been responsible for 25 per cent of all world mortality decline in the 20th century. Both authors believed that the decline in mortality from ARI which had occurred since the second world war was to a significant extent attributable to the introduction of antibiotics.



Pio *et al.* (1985) compared the mean annual reduction in infant ARI mortality for a number of countries in the early 1970s. The data are shown in Table 1. Canada and USA were still declining rapidly during that antibiotic period. Costa Rica and Cuba, two much less affluent countries which were nevertheless at that time paying substantial attention to the dissemination of modern medical care, showed very considerable gains during a period when Ecuador and Paraguay made little progress.

**Table 1**  
**Deaths from pneumonia and influenza per 100,000 liveborn infants in six countries of the Americas**

Country	Year	Rate	Mean annual reduction %
Canada	1969	163.7	-14.7
	1977	45.9	
USA	1968	225.8	-15.3
	1977	50.6	
Costa Rica	1968	586.0	-7.9
	1977	280.4	
Cuba	1968	646.7	-8.0
	1977	306.4	
Ecuador	1969	925.2	-1.9
	1974	841.2	
Paraguay	1969	1,564.6	-0.36
	1977	1,519.6	

Source: Pio *et al.*, 1985; Tuberculosis and Respiratory Infections Unit, World Health Organization.

Mohs (1982) has documented the achievements in Costa Rica in some detail. Between 1970 and 1980 large falls in mortality were achieved especially among infants and children, with a 69 per cent decline in infant mortality and a 79 per cent decline in deaths in those aged 1-4 years. In these age groups the mortality reduction was achieved in three groups of infectious diseases: diarrhoeal diseases, diseases preventable by immunization and ARI. In the years before 1970 the national health services concentrated on malnutrition, identifying lack of food as the major underlying basis of the major health problems. In the 1970s simple lifesaving technologies were introduced into the infrastructure which had been developed including immunization, use of oxygen and antibiotic drugs. Deaths from pneumonia and broncho-pneumonia decreased in that time by 65 per cent contributing 12 per cent of the observed mortality reduction in childhood.

**Table 2**  
**Age-specific mortality rates from all-causes and from pneumonia-influenza in seven countries or areas in the Western Pacific region (pneumonia-influenza rates in brackets) rates per 100,000.**

Age Group	Australia 1974	Fiji 1975	Hong Kong 1975	Japan 1975	New Zealand 1974	Philippines 1974	Singapore 1975
0-1 yr	1,615.5 (66.5)	4,259.2 (466.9)	1,500.0 (200.8)	1,004.7 (84.9)	1,558.9 (173.6)	5,889.7 (1,562.2)	1,389.3 (255.3)
1-4 yrs	83.8 (4.1)	314.8 (49.4)	77.6 (15.6)	84.7 (7.1)	83.3 (5.7)	745.7 (290.8)	85.7 (20.9)
5-14 yrs	36.2 (0.7)	112.9 (9.6)	33.5 (2.9)	30.7 (1.7)	40.5 (1.3)	151.2 (36.3)	35.8 (4.1)
15-24 yrs	111.7 (1.6)	205.7 (7.3)	57.1 (3.8)	71.6 (1.9)	111.1 (0.8)	174.1 (17.6)	77.8 (5.1)
25-34 yrs	107.0 (2.6)	277.1 (3.4)	104.2 (1.7)	93.2 (2.1)	108.6 (1.6)	242.2 (18.0)	126.2 (5.1)
35-44 yrs	226.9 (5.9)	516.6 (10.2)	233.7 (14.0)	196.9 (3.7)	234.3 (3.8)	449.2 (28.8)	253.7 (8.1)
45-54 yrs	634.2 (13.2)	1,233.3 (15.6)	552.9 (33.9)	422.7 (8.0)	608.4 (5.7)	760.4 (48.2)	709.5 (27.6)
55-64 yrs	1,593.6 (28.0)	2,314.6 (37.9)	1,394.5 (98.5)	1,043.3 (27.4)	1,521.7 (18.2)	1,375.1 (91.6)	1,754.9 (86.7)
65-74 yrs	3,771.9 (76.9)	4,591.0 (51.0)	2,977.7 (278.6)	2,960.5 (125.1)	3,586.1 (54.0)	5,829.8 (380.0)	3,492.1 (252.3)
75 yrs and above	11,723.1 (455.8)	7,890.0 (171.4)	7,216.1 (1,256.2)	9,947.9 (600.6)	11,194.9 (601.3)		
All ages	868.4 (24.7)	689.0 (29.5)	485.3 (50.3)	631.1 (28.7)	829.6 (29.1)	685.0 (117.8)	508.8 (42.1)

Note: No computations were involved in these data taken straight from WHO Statistics Annual and Fiji Health Statistics Division.

Source: Douglas, 1978; WHO Statistics Annual 1977 and Fiji Health Statistics Division.

Tables 2 and 3 are taken from my own consultancy report to the World Health Organization in 1978 and show the relative contribution of ARI mortality to total mortality in a number of countries of the Western Pacific Region in 1974 and 1975 (Douglas, 1978). The countries with the highest overall mortality rates also have a higher proportionate contribution from ARI to that mortality experience. Comparison of the age-specific data between the Philippines, Fiji and Australia, shows that as the all-causes mortality falls, the relative contribution from ARI decreases appreciably.

Table 4 traces the fall in ARI mortality in France and Australia since the advent of antibiotics, comparing ARI mortality of all types with all-causes mortality (for this table, ARI includes measles, whooping cough, scarlet fever, diphtheria, pneumonia, influenza and bronchitis whereas previous tables referred only to pneumonia and influenza). In each case, the fall in ARI mortality has been much faster than the fall in all-causes mortality. Whereas in 1948, 22.7 per cent of all French male toddler deaths were due to ARI, by 1978 this proportion had fallen to 2.8 per cent of the much smaller number of deaths that were occurring. It seems likely that antibiotics and vaccines were contributing to this salvage of lives.



**Table 3**  
Age-specific deaths from pneumonia-influenza expressed as a percentage of all deaths in that age group and also the ratio of age-specific death rate for pneumonia-influenza to the corresponding Australian rate (ratio of rate to Australian rate in brackets)

Age Group	Australia	Fiji	Hong Kong	Japan	New Zealand	Philippines	Singapore
0-1 yr	4.1% (1)	11.0% (7.0)	13.4% (3.0)	8.5% (1.3)	11.1% (2.6)	26.5% (23.5)	18.4% (3.8)
1-4 yrs	4.9% (1)	15.7% (12.0)	20.1% (3.8)	8.4% (1.7)	6.8% (1.4)	39.0% (70.9)	24.3% (5.1)
5-14 yrs	1.9% (1)	8.5% (13.7)	8.9% (4.1)	5.5% (2.4)	3.2% (1.9)	24.0% (51.9)	11.5% (5.9)
15-24 yrs	1.4% (1)	3.5% (4.6)	6.7% (2.4)	2.7% (1.2)	0.7% (0.5)	10.1% (11)	6.6% (3.2)
25-34 yrs	2.4% (1)	1.2% (1.3)	1.6% (0.7)	2.3% (0.8)	1.5% (0.6)	7.4% (6.9)	4.0% (2.0)
35-44 yrs	2.6% (1)	2.0% (1.7)	6.0% (2.4)	1.9% (0.6)	1.6% (0.6)	6.4% (4.9)	3.2% (1.4)
45-54 yrs	2.1% (1)	1.3% (1.2)	6.1% (2.6)	1.9% (0.6)	9.4% (0.4)	6.3% (3.9)	3.9% (2.1)
55-64 yrs	1.8% (1)	1.6% (1.4)	7.1% (3.5)	2.6% (1)	1.2% (0.7)	6.7% (3.3)	4.9% (3.1)
65-74 yrs	2.0% (1)	1.1% (0.7)	9.4% (3.6)	4.2% (1.6)	1.5% (0.7)	) 6.5%	) 7.2%
75 +	3.9% (1)	2.2% (0.4)	17.4% (2.8)	6.0% (1.3)	5.4% (1.3)	) )	) )
All ages	2.8% (1)	4.3% (1.2)	10.4% (2.0)	4.5% (1.2)	3.5 (1.2)	17.2% (4.8)	8.3% (1.7)

Source: Douglas, 1978.

**Table 4**  
Mortality from ARI in childhood and all-causes of mortality in France and Australia 1948-1979

	Males				Females			
	< 1 year		1-4 yrs		< 1 tear		1-4 yrs	
	ARI	All causes	ARI	All causes	ARI	All causes	ARI	All causes
France								
1948	1,131	6,150	75	330	923	4,670	77	290
1955	516	4,490	32	190	433	3,430	32	170
1966	100	2,050	7	100	75	1,590	8	80
1970	68	1,740	4	90	59	1,330	3	70
1978	15	1,200	2	70	16	920	2	50
Australia								
1948	398	3,180	54	200	359	2,490	47	160
1955	213	2,550	22	160	173	1,980	23	130
1966	164	2,080	14	110	141	1,640	13	90
1973	89	1,830	9	100	78	1,410	6	70
1979	23	1,260	3	60	23	1,010	2	50

All figures are deaths per 100,000. In cases under 1 year the denominator is live-born ,and aged 1-4 years it is census population. All ARI causes are included, including measles, whooping cough, scarlet fever, diphtheria, pneumonia, influenza and bronchitis.  
Source: *Demographic Yearbook*.

## **A global effort to control mortality in developing countries**

In 1976, the World Health Assembly decided for the first time to attempt to tackle ARI mortality in children in the developing world. Dr David Miller and I were the first consultants invited to review the problem and we, and subsequent groups, which have examined a growing mass of data relating to the epidemiology of severe ARI disease in developing countries, reached the conclusion that a program resting on three elements, immunization, health education and simplified standard case management, offered the prospect of significantly reducing mortality from ARI in those countries where it was high (Douglas, 1978, 1983).

Prototype programs were mounted in a number of countries in a quasi-experimental fashion. These studies are difficult to undertake and a detailed analysis of the results is beyond the scope of this paper. A number of the projects are still being evaluated, but the general conclusion emerging from them is that it is indeed possible, using this combination of interventions, to lower mortality quickly both from ARI and from all causes. The pilot programs in Pakistan, Nepal, Tanzania, Indonesia, the Philippines and India, which involved concurrent control groups in some instances and before-after comparisons in others, were reviewed at a workshop in Geneva in early 1988. The conclusion was that significant mortality reduction in the majority of the projects could be attributed to the case management interventions which had occurred.

The methodological issues in distinguishing ARI mortality from total mortality are substantial and a consensus is emerging within WHO that monitoring disease-specific mortality in such projects is fraught with hazards and that total mortality is a preferable indicator of the outcome of such interventions. Some of the projects have been hampered by difficulty in distinguishing the relative contributions of immunization and case management to the observed mortality reduction. However, there is strong evidence that case management alone in this setting can impact on total mortality.

## **The nature of standard case management**

Shann (1985), an Australian working in Papua New Guinea, in the late 1970s, played a major role in formulating the simplified case management guidelines. He recognized that what was needed was something which mothers could understand and which could serve as basic rules-of-thumb for slightly educated primary health care workers. He established from careful hospital-based studies that children with respiratory rates more than 50 were at substantial risk of suffering severe bacterial pneumonia and that those whose ribs showed retraction or who were failing to feed and/or were listless, were at particular risk of dying and therefore required hospitalization.

Accordingly, a classification of ARI into mild (respiratory rate less than 50), moderate (more than 50) and severe (with evidence of rib retraction, failure to feed or lethargy) provided a simple categorization which could become the basis for mass education and training programs. Primary health care workers could be taught to administer cheap and safe antibiotics for all cases classified as moderate or severe, and simple standard guidelines were also developed for management of severe cases in dispensaries and hospitals.

Currently there is some debate about the specificity and sensitivity of these simple criteria and it is clear that more work is needed to ensure that the guidelines neither expose children unnecessarily to antibiotics nor exclude significant numbers of those for whom



they would be life-saving. Their simplicity makes them extremely useful in an area in which medical mystification has provided a barrier to care in the past. The guidelines can be relatively easily taught to mothers whose cultural backgrounds would often lead them otherwise to use traditional remedies or to present the child for care only when it is in a terminal state. If the guidelines being promulgated by WHO are followed, the provision of antibiotics is not an expensive form of care for these children and it is probable that the average child in a developing country would not receive more than one and a half courses of antibiotics per year which is considerably less than the number being administered to children in the developed countries.

The implementation of this case management approach is nevertheless a massive logistical exercise and even at the level proposed, is probably beyond the capacity of many of the less developed countries where the childhood mortality is highest. It requires a primary care system with health workers trained in the simple methods of case management within a day's walk of every child. It requires a drug dispersal system which can ensure that precious lifesaving antibiotics are not dissipated on mild cases or diverted to less deserving causes. And it requires a major training program for health workers which must begin with the doctors who often regard the simplification of case management as an affront to their clinical training. The pilot projects carried out so far have concentrated on the primary care base and have done little to strengthen referral services where further gains could probably be made in the management of the more seriously ill cases.

The available epidemiological evidence indicates that two bacteria, *pneumococcus* and *haemophilus influenzae*, account for the vast majority of serious life-threatening pneumonia cases in the developing world after measles, whooping cough and diphtheria have been prevented by available vaccines. Vaccines are already available for the prevention of pneumococcal and *haemophilus influenzae* disease in older children over the age of two years but in the very age group for whom vaccine prophylaxis is most urgently needed, the immune response to the current vaccines is inadequate. A new generation of vaccines is now under development which could, when included in the expanded program of immunization, profoundly influence mortality.

### **The educational needs of an ARI control program**

An effective case management program depends first and foremost on an educated population. The basic messages are simple and unequivocal.

1. Most children with coughs do not need antibiotics.
2. Cough and fast breathing - give an antibiotic.
3. Cough and chest indrawing - admit or refer to hospital.

Parents need to understand that they should watch the child's breathing above all, and that when there is normal breathing, and no danger signs (of being unable to drink or abnormally sleepy, of fits or convulsions or periods of not breathing), the child should be fed normally, continuing breastfeeding, and should have plenty to drink.

A case management program can only work if parents and primary care workers both understand these simple messages. For this reason, prior attitudes and practices and behaviour surrounding ARI become the major determinant of the viability of a case-management program. The pilot programs referred to above have been variably intensive in their educational efforts.

### **A better way to go?**

A preferable approach to the control of ARI mortality would be if we could simulate the apparent non-specific enhancement in resistance which was occurring in the inhabitants of the developed countries before the advent of vaccines and antibiotic drugs. A clue to understanding that phenomenon has emerged recently from the work by Sommer and his associates (1984) in Indonesia where it has been shown increasingly convincingly that Vitamin A deprivation is associated not only with the classic eye signs of xerophthalmia, but also with impaired resistance in the respiratory and gastro-intestinal tract. Changes in ARI and other mortality followed supplementation with Vitamin A. It all seems to suggest that nutritional lack is the biggest single factor which predisposes children to high ARI mortality in the developing world.

But even well-nourished Australian children suffer up to seven or eight episodes of viral respiratory infection each year in their first few years of life. It is difficult to know how much of this load would be fatal in the absence of the antibiotic therapy which is lavished freely in societies such as ours. Prevention of this heavy load of morbidity with its attendant subsequent consequences of chronic respiratory disease in a significant proportion of children remains a major challenge to medical scientists in the developed countries. Approximately 200 different serological strains of viruses are implicated in this burden and in addition, there are a large number of bacteria which normally reside in the upper respiratory tract and which, in the presence of virus invasion, are facilitated in their invasive role in the lower respiratory tract.

### **Progress in the global program**

The ARI program is now moving rapidly into an operational phase. About 20 countries now have national programs which meet WHO criteria and several more are on the verge of developing them. This program has until quite recently been dwarfed by the Diarrhoeal Disease Program with which it shares several common features. Both syndromes are caused by large numbers of infecting agents and have complex aetiological factors which include both viruses and bacteria. Both demand a tripartite approach to their control, including immunization, education and clinical management. Both are partly dependent on nutritional factors as well as environmental hygiene, and both will depend for their success on an effective primary care network and an informed population. The two programs have recently been brought under the same administrative umbrella within WHO, and are already drawing strength from each other and sharing common training and surveillance methodologies.

### **Implications**

Infections of the respiratory tract are ubiquitous and, at present, a part of the human predicament. Methods are available to modify them and to reduce the severity of their impact, but not at present to eradicate them, though there are those who believe that measles eradication is feasible. Pilot projects in a number of developing countries are uniformly showing that it is possible, using the technology that is available now, to produce a 30-50 per cent reduction in ARI mortality with a measurable impact on total mortality in the short term. The Costa Rica experience suggests that this short-term impact can be sustained where an adequate primary care infrastructure exists in the absence of major socio-economic change.



A case-management approach to the control of respiratory infections is second best to primary prevention. But it seems probable that case management and immunization have contributed at least partly to the degree of mortality control which has been achieved in industrialized countries and that replication of this antidotal approach in some developing countries could increase child survival in the short term. It also seems probable that the sustainability of this approach to mortality control is heavily dependent on the availability of adequate basic nutrition. The care of a sick child is an excellent opportunity to combine clinical management with health education of parents. But if basic nutrients are simply unavailable, or if there are cultural impediments to the intake of essential vitamins, it seems likely that a case management approach would do little to improve the long-term demographic situation.

The Global ARI Control Program is a pragmatic response to a problem which was largely ignored until quite recently, and for which a case management strategy is only a partial answer. More research is needed into the factors which make some children particularly prone to the effects of these infections and which enable others to resist their effects.

## Acknowledgements

I am grateful for the permission of Hodder and Stoughton/Edward Arnold to reproduce Figure 1 and for the permission of The University of Queensland to reproduce Figures 2a and 2b.

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## Chapter 55

# Communication and social marketing in controlling iodine deficiency disorders

Basil S. Hetzel

### Introduction

Iodine Deficiency Disorders (IDD) is the term now used to describe all the effects of iodine deficiency on growth and development. In previous years the term 'goitre' has been used to describe the effect of iodine deficiency. 'Goitre' is the term used to describe enlargement of the thyroid gland in the neck and goitre is indeed the most obvious and familiar feature of iodine deficiency. However, we now recognize that the important effect of iodine deficiency is beyond the thyroid gland because of the fact that the gland is unable to keep up a normal level of thyroid hormone. Iodine is an essential constituent of the thyroid hormone and severe iodine deficiency is associated with gross reduction in thyroid secretion which affects growth and development, particularly during foetal life, infancy and childhood. The effects include increased stillbirths, increased infant mortality, as well as more subtle effects on brain development. We know that the thyroid hormone is essential for normal brain development and so is particularly critical in the periods of rapid growth of the brain through foetal life and the first two years of infancy.

Adequate evidence is now available from controlled trials and experience with public health programs throughout the world to indicate that all the effects of iodine deficiency can be prevented by correction of iodine deficiency using various types of iodine supplement. The method used most commonly is that of iodized salt. Salt is eaten in approximately the same quantity each day as a condiment so that the addition of iodine to it ensures a reasonably steady intake each day. However, the use of iodized salt can be difficult because of the fact that salt is readily available in many countries and iodization has to be introduced into an industry that is already established.

Remarkable progress with iodization of salt has been achieved in the last decade by China and more recently by India. Earlier successes with this method were achieved in Switzerland and in the United States.

The other technology commonly used is iodized oil which can be given by injection or by mouth. A single intramuscular administration will correct severe iodine deficiency for up to five years, longer in the case of an injection than if the oil is given by mouth. Such injections are a very valuable means of correction of iodine deficiency in more remote areas where salt may not be used.

The availability of suitable technology, while the basic requirement for a national iodization program, is only one element in an IDD control program. It is now clear from an analysis of success and failure in various programs, that political, social and economic factors are important, but it is also most important that the community understands the problem and the reason why correction of iodine deficiency is necessary. This leads us into the field of communication which has only recently been recognized to be of basic importance in public health programs.



## Communication

Communication is concerned with transmitting the message of the effects of iodine deficiency to various target groups that make up a community. There are three major categories to be considered: health professionals, policy and decision makers, and the general public.

### Health professionals

Health professionals involved in the control of IDD come from a wide variety of disciplines with different basic education. They include administrators, planners, economists and statisticians as well as medical graduates in public health and epidemiology. Then there are nutritionists, nurses and technicians in laboratories and clinics who also need to have an understanding of IDD. Finally there is a special category who are not health professionals, but technologists, as in the salt industry, who are very important partners in the team required for the successful control of iodine deficiency. The new concept of IDD is still not widely disseminated, although considerable progress has been made in the last three years.

It is now quite clear that this concept needs to be understood by health professionals in various fields, including maternal and child health, mental health, family planning, and nutrition.

Suitable publications for health professionals are now becoming available. A recent monograph entitled *The Prevention and Control of Iodine Deficiency Disorders* (Hetzel *et al.*, 1987) has been specifically designed for a multidisciplinary audience, in contrast to previous texts which have been predominantly biomedical in nature and not readily comprehensible by a broad multidisciplinary readership.

### Policy and decision makers

This group is exceedingly important because it controls the allocation of funds for public health programs and has to make decisions on the relative merits of different areas in the health field.

It is clear that this group has no interest in the detailed physiological effects of iodine deficiency through reduction of thyroid hormone output. The interest of policy and decision makers is in the operational benefits of the control of iodine deficiency. What does prevention of IDD mean in terms of improved school performance of children, improved productivity of adults and improved quality of life? Such questions are very important in Third World countries like Nepal because of the fact that mentally defective subjects are unable to maintain their independence in the rugged Himalayan environment. Hence they have to be supported by others which is a very significant burden on the family and local community under such conditions.

It is also clear that there is general apathy in severely iodine-deficient communities, which can be removed by correction of the iodine deficiency. These communities can come to life in a remarkable way with correction of iodine deficiency and restoration of normal thyroid gland function. There is greater self-reliance, individual and social initiative and a big change in the social environment under such conditions.

The use of modern methods for communication such as films and video is now increasing. A recent film made by the Delhi office of UNICEF (1988) entitled 'The Stealthy Scourge' includes footage from a number of Asian countries – Bhutan, Nepal, India, Indonesia and China. It is designed for policy and decision makers. Such a video can be

shown on national television networks to arouse awareness of the IDD message, both in the Third World and in the developed world.

A recent book entitled *The Story of Iodine Deficiency* (Hetzl, 1989) has been written with the specific aim of increasing awareness of the IDD problem in a wide audience beyond the health professional group.

### **The general public**

We have to distinguish between an educated public able to read who are more likely to be urban, and an uneducated group, who cannot read and are more likely to be rural. It is the latter group which is likely to have IDD. For such groups the transistor radio and television are very important aids to communication.

Recent experience with public health programs indicates the importance of studying community perceptions of particular problems and then designing an approach which takes into account these community perceptions. The term 'social marketing' refers to this approach which has now become a prominent feature of public health programs.

One of the foremost exponents of social marketing is Manoff (1985) who points out that the usual presentation relying on the problem-solving approach may be inappropriate for the target audience. The perception of the target audience may be quite different from that of the health professional; for example, goitre is often so common in a severely iodine-deficient community that it is regarded as normal and therefore of no consequence. This means that it will not be possible to succeed with an iodized salt program if exclusive attention is paid to goitre without reference to the broader effects of iodine deficiency. This is what is known as a 'resistance point'. Clearly the identification of resistance points is most important in successful communication. The need for correction of iodine deficiency for normal pregnancy and prevention of mentally defective infants is clearly the focus of the communication effort.

Social mobilization is the term applied to the involvement of the whole community in order to secure acceptance and enthusiastic adoption by a community of a public health program. Social mobilization refers to a comprehensive approach involving the whole community as well as including special community groups such as religious, educational and political groups within it. Special efforts like a local health fair, radio and TV spots are also part of social mobilization.

An example of such a program is provided by Bolivia where 65 per cent of school-children had iodine-deficient goitre and there was frequent occurrence of severe mental deficiency in the form of cretinism affecting up to 16 per cent in some isolated villages. Earlier campaigns involving intramuscular injections of iodized oil since 1985 had shown a big drop in the prevalence of palpable goitre from 76 to 42 per cent. The current campaign involves the treatment of 1.5 million at high risk of IDD with oral iodized oil. The campaign began in June 1988 with the training of regional health care workers and administrators in each of Bolivia's nine sanitary units. Education about the goals and methods of the campaign, as well as supplies of oral iodized oil, were then disseminated through the health care network involving the variety of health professionals already described. This included a network from district to village level including non-professional community health workers numbering thousands throughout the country. They were assisted by community level organizations such as schools, churches and political groups. Special educational material has been produced, one part aimed at health care professionals and the other for



community health workers. Radio and television spots have been developed with organization of local health fairs and presentations to various community groups.

The impact of this program is being assessed by designation of 30 sentinel communities in which the prevalence and severity of endemic goitre is recorded as well as measurements of urine iodine levels. These measurements will be made at intervals over the next two years as an index of the efficacy of the national campaign (Havron, 1988).

## Evaluation

The evaluation of the impact of social marketing and social mobilization is most important. In the case of iodine deficiency there are a series of indicators which can be used. These include the goitre rate, the prevalence of cretinism, measurements of urine iodine excretion, and measurements of thyroid hormone level in the blood.

All these indicators are useful. With large populations, however, laboratory methods are becoming more and more widely used because of the availability of automated laboratory equipment. In addition, the knowledge and attitude of the community towards iodine deficiency can also be assessed. All these indicators can provide a comprehensive measure of the impact of the campaign. The availability of such measures and their ready feasibility mean that the problem of iodine deficiency can be satisfactorily controlled with appropriate training and funding inputs.

Providing there is political will, we have sufficient knowledge to be confident of the control and elimination of iodine deficiency disorders in the next decade. This goal has been accepted by a recent Joint WHO/UNICEF Health Policy Committee meeting in Geneva in January 1989. This followed passage of a similar resolution through the World Health Assembly in 1986.

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## Chapter 56

# Methodology

### 1. Methodological problems in the study of the health transition

Alberto Palloni

In my remarks during the opening ceremony I singled out several characteristics of what we call the health transition. One of them was multiplicity: multiplicity of stages and multiplicity of paths. I stand by my remarks. I would like to open my comments about methodology by asserting that the study of the health transition requires *multiple methodological strategies*. To some of us who work in a single tradition this statement may invoke an epistemological leap of proportions. And yet, the discussions in this workshop indicate that findings and their explanations do not all come from a single methodological protocol. A great deal of what has been discussed in the workshop is based on ethnographic studies, some is based on broader but nevertheless case-based studies, little on conventional multivariate analysis of individuals within a large community, and virtually nothing on cross-national comparisons. There are, however, some major methodological themes that are tightly interwoven in the presentation and discussions of this Workshop. Each of them represents a challenge for methodologists since they are quite problematic although they differ in terms of degree of difficulty.

#### The various layers of reality

The study of health and mortality and its determinants requires that we study different levels of aggregation without overlooking the necessity for integration of such levels. In my own work on Latin America I have found it useful to distinguish types of transitions from high to low mortality regimes. The typology – which is based on the aggregate experience of societies – serves at least the purpose of organizing diverse historical experiences. It may even provide the basis for inferring and/or suspecting the existence of broad societal forces that transform ideational structures or lead to the overhaul of social, economic, and political institutions. But the exercise will be futile until we do understand how such society-based determinants affect individual behaviour. To achieve this we need to find ways of integrating and reconstructing the various levels of aggregation.

Thus the integration of levels of aggregation is a methodological task that we must undertake sooner or later. There are four classes of problems that one faces when integrating levels of aggregation. The first refers to the assessment of effects that are attributable to contextual or aggregate characteristics as opposed to individual characteristics. The second refers to the type of inferences that are possible from studies that cover similar levels of aggregation but that were carried out with different protocols of data collection and measurement. The third problem involves the dichotomy and apparent opposition of inferences from multivariate analysis based on many cases and inferences anchored in case studies, based on the analysis of one or a handful of cases. The fourth and final problem refers to the manner in which cross-sectional data and cross-sectional research can guide and be guided by in-depth studies of single communities. Since Ian Diamond and John Cleland will deal with, respectively, the first and last of these problems, I will concentrate on the other two in reverse order of presentation.



Case studies may provide equal or stronger basis for broad generalizations about the determinants of health and mortality than those derived from the more conventional multivariate analyses. But to produce robust inferences from case studies we need to apply and develop an inferential method. Some of us have experimented with the use of symbolic logic and Boolean algebra and I think that this is a promising path if only because it has proved to be quite useful in other fields. Admittedly the strategies designed so far have serious limitations, but so do the more conventional multivariate methods. The important point is that case studies can provide a basis for falsification and hypothesis testing and should not be reduced to the role of fishing expeditions, to facilitate the identification of what is important to know before carrying out a more macro level study: case studies are not just the exploratory tools that come first in the logic of discovery but they could become in themselves powerful sources of inferences. There are many examples that can be given to illustrate their strength and also to point out what is needed to make inferences more robust. The systematic comparison of 'typical' cases of various types of health transitions has provided important insights to identify major determinants. Thus, for example, the cases of Kerala, Costa Rica, Cuba, Sri Lanka represent a relatively uniform type of transition from high to low mortality regime whereas the cases of Bolivia, Peru, and Bangladesh represent a quite different type. Studying what is common to the members of the same class and what is different among members of various classes, should allow a better understanding of the main determinants of mortality change. But the comparison ought to be systematic, following a rigorous protocol rather than the wishes and arbitrary decisions of the investigators. Another example (among many others presented in this Workshop) is the case study done by M. Nations: it illustrates how agents accommodate under constraints of structures and institutions to deal with certain illnesses. Other case studies, in ecologically and socially different settings should provide reinforcement to the inferences about how actors modify their behaviour with consequences for health and mortality.

The second problem emerges because of the lack of a systematic procedure to process and elaborate the findings of several studies that have investigated similar relations. Thus, for example, there are many studies about the relations between female education and infant mortality, or female autonomy and children's health, or female management and time allocation and children's health. Does the set of findings tells us something that each of the members of the set does not? There are some new techniques developed by statisticians to perform meta-analysis that are appropriate to mention here. Meta-analysis enables us to produce robust inferences by systematically processing the relations and regularities uncovered by studies with disparate designs and samples. I think that the exploration of the applicability of meta-analysis to the study of health and mortality is well worth while, particularly to those present here who are studying the same phenomenon in different contexts and following different strategies for the collection and organization of the information.

### **Morbidity and mortality**

A second major theme that has surfaced time and again in the Workshop is the dilemma faced when one is studying morbidity rather than mortality. Although the workshop is on 'Health', our discourse has been focused on mortality. Difficulties in measurement and identification are in part to blame for this bias. And one of my colleagues in the panel will treat this issue more thoroughly than I am able to. I would like to limit my remarks to



proposing that we experiment further with techniques of analysis that facilitate inferences about the determinants of disease processes in general and about the experience of multiple episodes of the same or related diseases. The event is a 'spell of disease' (assuming that we are able to identify it) rather than a terminal and unique event such as death. It is not only feasible but necessary that we model how, say, a mother's management of health conditions of a child precipitates the disappearance or the recurrence of certain illnesses and how the occurrence of several spells itself may produce cumulative damage, further illnesses and perhaps eventually even death: the 'self-excitement' of the disease process is an important part of the chain of events leading from background to intermediate determinants and to health outcomes. Thus, provided that we can surmount the problem of proper identification of diseases, we should utilize more frequently the arsenal of tools that statisticians have developed to model multiple-spell, multiple-episode events. This is the only way we will understand the relations between health, morbidity and mortality and should allow us to interpret relations (e.g., increasing morbidity and lower mortality) that otherwise may seem perplexing. The policy implications of this type of methodological improvements should not be minimized: the control of morbid processes with a high degree of self-excitement should come first in the agenda to reduce morbidity as well as mortality.

### **Clustering of mortality**

A third theme that has emerged from our discussions is the explanations of the seemingly paradoxical clustering of child mortality (or morbidity). The problem here is to disentangle what are the effects of characteristics that are shared by the children from those that are unique to each of them and, finally, from the effects that the events experienced by one of them may have on the probability that the others will experience the same events. Although not yet fully developed, it is possible to approach the problem as if it were one of disentangling effects operating at different levels: household characteristics, mother's characteristics, and children's characteristics. With conventional study designs, such as retrospective birth histories of the WFS type, it is difficult but possible to estimate the contribution of each of them to the total variability in mortality and thus explain the apparent clustering of children's deaths. The exercise is analogous to breaking down the total variation of a variable into 'between' and 'within' components. Although the method for achieving this is far from being fully developed, a colleague and I have employed it rather successfully to explain the intriguing correlation of spouse's survival. It is important that we borrow developments in other fields to solve problems that we have in ours. But if we are going to do so more successfully we should tailor data collection endeavours so that the application of such methods and techniques is feasible and can proceed as painlessly as possible. From this point of view I am speaking not only to methodologists but also to those who design data collection enterprises.

### **Diversity of experiences within the same population**

The last methodological theme that I would like to refer to has two somewhat different although related aspects to it. One has to do with the type of explanations that are called for to account for transitions or, alternatively, for lack of change. The other is more closely related to policy formulation and design.

We have frequently spoken of health transition as if our statements applied equally well to individuals of all ages or social groups. Yet, the findings presented at this workshop



show that this is misleading. Not only do countries experience different multiple transitions but so do groups of individuals by age or social class. This internal multiplicity of a transition is important in itself to characterize the process. But the diversity of experiences by age is important for another reason as well, namely, that the health of some individuals in the society is strongly dependent on the health of individuals of different age groups. Thus, for example, we saw how in Guatemala the possible strategies to maximize the health of children were constrained for the mother by her own health and morbidity. Also, in societies where the care of elderly depends on the younger generations, the inequalities in levels of morbidity by age will play a major role in the progress of the health transition.

The health transition may thus operate at cross purposes, producing divergent paths for individuals or groups. This possibility should force us to recognize the heterogeneity explicit in our models lest we take as exogenous what in reality is endogenous and must be explained.

The other issue has some policy more than methodological implications. We frequently find that either morbidity or mortality is highly sensitive to certain characteristics that are, however, rare in the population. We should probably explore the mechanisms that lead to such high sensitivity simply because it will illuminate the nature of morbidity or mortality determinants. However, we should not lose sight of the equally important fact that the changes in the levels of mortality or health that are triggered by altering the prevalence of certain characteristics in the population are the combined result of sensitivity as well as of the original level of prevalence. Thus, as epidemiologists frequently do with a kaleidoscope of indicators, we should pay more attention to assessing the magnitude of effects as well as the magnitude of total changes attributable to changes in some characteristics.

## 2. What to tell the epidemiologists

**Ian Maddocks**

The world is wobbly: unstable, constantly changing. That change brings about changes in its human populations, and often in ways which are major and worrying.

Where a common pattern of worrying change which affects health (however measured) is recognized we can define, arbitrarily, a 'health transition'.

We are challenged to understand such a transition from the broadest perspective, because the views which are available from the specialist disciplines of medicine, epidemiology, demography, economics or anthropology often have not clarified what is happening sufficiently to allow us to discern causes or devise useful responses.

This is not an academic game; the AIDS epidemic and the environmental threats remind us that major and worrying change will continue to be our human lot, and that sophisticated integrated and global responses will be demanded.

If we do not start getting the human act together at the academic and scientific level, we can expect other people to do it for us, and in worrying ways.

From a population experiencing transition, a sample is selected for study. This will be an observational study, and because transition is affecting the whole community there is no opportunity to compare controls. But some random method of sample collection is essential. The sample may be large (with the risk that the observer drowns in effort and

data) or small (with the risk that it is unrepresentative). It may be a study at a particular point in time (which is simple but risks being unrepresentative, not allowing for changes of season etc.) or longitudinal, following the population sample for a period of time (which is more demanding). It may address 'health' in a general way, or may centre on specific items perceived to have greatest relevance to the transition.

Health consequences of being in the transition need to be identified. Survey techniques may count health transition events, associations of those events, consequences of the events, beliefs about what is happening. Surveys may be done by having questionnaires completed, or by face-to-face contact.

Home reporting of illness events or other events to do with the transition may be recorded in a diary or elicited by regular contact through visits or by telephone. Reporting of illness episodes presenting to health facilities may record those associations of change, either by prospective and continuous reporting or by opportunistic or intermittent studies.

The classification of health-related events may be based on scientific criteria, through pathological diagnosis and clinical assessment, or on local, traditional criteria in non-scientific communities.

Assessment of the impact on communities of transitions in health may be on clinical estimates of illness severity; or by estimates of the effects on activities of daily living (ADL), on absences from school or work, on limitation of activities in the home. The utilization of resources by the community in meeting consequences of the health transition may be counted as time or money and at a household or community level.

Table 1

1. POPULATION			
2. SAMPLE	CROSS -SECTION LONGITUDINAL	LARGE SMALL	GENERAL SPECIFIC
3. IDENTIFICATION	SURVEY: events associations, consequences, beliefs, by visits, questionnaires HOME REPORTING by diary, phone HEALTH FACILITY REPORTING - case studies, records, opportunistic, prospective reviews		
4. DIAGNOSIS	SCIENTIFIC (physician, nurse) TRADITIONAL (shaman, healer)		
5. DESCRIPTION OF IMPACT	SEVERITY: Pathology, clinical assessment ACTIVITY: ADL school, home, work RESOURCE UTILIZATION - time, money		
6. OUTCOME	DISABILITY temporary, permanent major, minor SURVIVAL OR DESTRUCTION		

The outcome of any health transition event, such as an illness, a change in nutrition, or a change in daily activity, may be temporary or permanent. If the change is



disadvantageous to individuals or to groups it may cause disability which is major or minor. A major change may threaten the very structure and survival of the individual or group.

There is still a tendency for non-medical persons to view medical knowledge as somehow sacred, inaccessible. It is not so complex, just big. Anthropologists and geographers can become very expert in particular areas of health vocabulary and practice. The studies most likely to succeed will have a small focus for a particular population, will address specific problems and use agreed, standardized and simple methods. Such a study is not too complex for any of us to engage in, allowing us to cross artificial discipline boundaries, work together and learn from each other.

### **3. Some contributions of statistics to the study of health transitions**

**Ian Diamond and Patty Solomon**

#### **Introduction**

One certain result of a major program of international research into health transitions will be the generation of a large amount of data. Whether these data come from historical archives, micro-level case studies or larger-scale surveys the need for appropriate statistical analysis is paramount. Elsewhere in this volume Berman (1990) argues that the sophistication of statistical models has, in recent years, outstripped the quality of the data available. This is true but at the same time, improved data will bring new problems of statistical analysis and it is essential that the data collected through the Health Transition program are analysed appropriately and subjected to detailed secondary analysis. Too many studies have failed to exploit potentially rich data because of time constraints, technological limitations or budget. In addition, recent developments in statistical data analysis and modelling mean that statisticians have an important role in the health transition program.

This note focuses on three issues. First, data problems are considered with a particular emphasis on community level data. Second, the use of recently developed techniques to analyse data at different levels of aggregation is described and the potential use of such techniques in secondary analysis highlighted. Third, the use of statistical modelling to understand the aetiology of a disease is described with an example of AIDS mortality in Australia.

#### **The use of contextual information**

In the early 1980s a lot of work was undertaken to assess the influence of community level variables on fertility. Much of this was undertaken because of the availability of a large battery of community level and household characteristics on the data from surveys collected under the auspices of the World Fertility Survey (WFS) program. This work culminated in the volume edited by Casterline (1985) which contained a series of both substantive and methodological papers on the analysis of community level data. In the introduction, Casterline (1985: xiii) states that '...in general, community characteristics show weak and inconsistent associations with reproductive behaviour'. This feeling pervaded much of the work on the WFS data although there were some promising results in the fields of proximity to health care and mortality (Casterline, 1987).

To understand why these community data provided such unpromising results it is necessary to recognize that they were deliberately designed to be simple indicators of the community setting. Unfortunately it appears that, for a number of reasons, simple community-level data will disguise demographic effects rather than elucidate them particularly when they are used in a statistical model. To demonstrate this two illustrative examples follow.

First, consider an initiative to reduce levels of mortality in rural areas without health centres. The initial centres may be targeted at the areas with the highest mortality. Until these centres have had a chance to reduce levels of mortality the relationship between the provision of a health centre and the level of mortality may be weak statistically as areas with moderate mortality will be less likely to have a health centre than those with high mortality.

**Table 1**  
**Sources of water collected in 1983 Philippines National Demographic Survey**

Safe	Unsafe
Artesian (deep well)	Lake/river/stream
Pipe Water	Spring
	Rainwater
	Open Well
	Pump (Hollow well)

Note: 'Safe' and 'Unsafe' are as defined by Cabigon (1989)

**Table 2**  
**Infant mortality rates by education of mother and household water source: 1983 Philippines National Demographic Survey (per thousand)**

Water source	Primary and below	Elementary	High school	College and above
Lake/River/Stream	118	51	56	59
Spring	75	40	34	49
Rainwater	54	31	21	36
Open Well	71	47	35	19
Pump	69	35	34	18
Artesian (deepwell)	71	44	53	40
Pipe Water	52	54	45	32

Source: Cabigon (1989)

Second, collection of a simple aggregate index may hide important behavioural patterns. For example Cabigon (1990) uses data from the 1983 Philippines National Demographic Survey to investigate the factors influencing infant and child mortality. One household level index was the source of water, which was coded as one of seven categories (Table 1). Cabigon recoded these categories into a dichotomous variable which reflected a 'safe' or 'unsafe' water supply and used this as an independent variable in a logistic regression of infant mortality. Her initial model suggested the unlikely result that highly educated women with an unsafe supply had lower infant mortality rates than their counterparts with a safe supply. Further exploration of the data was necessary and resulted



in the infant mortality rates presented in Table 2 which show clearly that highly educated women using an open well for their water source had particularly low rates of infant mortality. Unfortunately the data do not permit further investigation of the reasons for this unexpected result and one can only speculate that there may be behavioural differences; for example, highly educated women may routinely boil well water. However the clear conclusion is that to study the effect of water source on infant mortality, information is required in much greater detail.

Optimally aggregate data should be collected in the context of some behavioural model and when this has been done the results are much more promising. However the analysis of such data must still be carried out within the appropriate framework. This requires a multilevel approach and will be described in the next section.

### **The analysis of multilevel data**

The classic demographic model takes the form of some demographic phenomenon such as fertility (the dependent variable) being predicted by a number of independent (or predictor) variables. The form of the dependent variable largely determines the type of model - e.g. linear or logistic regression, but the main interest here is in how to specify a model in which there are both individual level and community level variables.

In many cases the community level variables are treated as independent variables which take the same value for each member of the community. This violates the fundamental assumption of regression-like analysis, namely that individual observations are independent. One might expect that individuals within a community might be affected in the same way by the presence or absence of, say, a health centre in their community but that the effect of a health centre may not be the same within all communities. In other words, the responses of individuals within a community may be correlated and this must be taken into account. To overcome this problem it is necessary to use a multilevel approach.

The desirability of taking the multilevel nature of the data into account has been widely known for a number of years but it has only been recently that reliable statistical software has become available. With their increasing availability a number of contributions to the Health Transition program are possible. First, a reanalysis of datasets with good community data may provide new insights. For example, Diamond and Holt (1988) show how one can gain an understanding of the underlying social processes at work in some areas of demographic behaviour. This may permit the identification of the most appropriate areas for in-depth analysis. Second, more precise estimates of overall effects can be obtained. An example is provided by Garner and Diamond (1988). However, it must be recognized that sophisticated statistical techniques such as these will never be a panacea for poor data collection and they will never overcome the problems identified in the preceding section.

### **The contribution of statistical modelling**

AIDS is poised to become the major public health risk of this century. The efficiency of vertical transmission is very high with potentially severe implications for developing countries. Substantial uncertainty and variability enter many stages of the disease process and many important, unanswered questions are essentially statistical in nature. Although this is also true to a lesser extent for other epidemics, the long and variable incubation period for AIDS makes its study especially difficult. Doll (1987) gives an authoritative

overview of major epidemics of the 20th century in the United Kingdom, but makes many comments that are relevant more globally.

Statistical analysis and mathematical modelling can help to control the epidemic by predicting the course of the epidemic and clarifying what behavioural changes are needed; and assessing the relative merits and likely impact of different intervention strategies and treatments; these in turn provide a valuable basis for planning for future demands on health care services, and enable sensible decisions to be made on what data should be collected. Anderson, May and McLean (1988) model possible demographic consequences of AIDS in developing countries. Using simple mathematical models of the transmission dynamics of HIV infection that incorporate both demographic and epidemiological processes, they suggest that, among other things, AIDS is capable of changing population growth rates from positive to negative over a time scale of several decades. Bongaarts (1989) also simulated the spread of HIV infection and the demographic impact of AIDS in Africa. Bongaarts concludes that by the year 2000, mortality will be double the level that would have prevailed in the absence of the AIDS pandemic; but owing to the very high birth rates that prevail in most of Africa, the growth rate will still be substantially positive at that time.

The major difficulty in monitoring the course of the epidemic in developing countries must surely be that of data quality. However, particularly for planning purposes, it is vital to provide both short and long term predictions. In countries like England and Wales, the USA and Australia, the approach to deficiency in the data has been to consider as broad a range of prediction and estimation procedures as possible. Each procedure has its sets of restrictions, but the aim is to obtain a band of predictions, and thus consensus on the likely course of the epidemic. An outstanding example of this approach is the recent report of a Working Group (1988) from England and Wales. Other relevant accounts are given in the January 1989 issue of *Statistics and Medicine* and in a report on the Australian experience of AIDS (Solomon *et al.*, 1989).

### **Illustrative example: the Australian experience of AIDS**

One approach to predicting the future incidence of new cases of AIDS is direct extrapolation from empirical curve fitting. A major methodological problem with this approach is the choice of degree of aggregation of the data. Solomon *et al.* (1989) found that the parameter estimates and predictions were in substantial agreement whether quarterly or monthly data were used, although the goodness of fit statistics did vary; standard errors from quarterly data were huge. However, estimated doubling times for the AIDS epidemic obtained from these estimates, although not statistically significantly different, can lead to qualitatively quite different interpretations.

Accommodating the fact that AZT became widely available in Australia around mid-1987, the current estimated doubling time based on monthly data for the overall Australian epidemic is 2.4 years; quarterly data produce a similar result. However, allowing for the unique geographical distribution of the Australian population, Victoria's AIDS epidemic appears to be doubling about once every 1.5 years according to the monthly data, whereas the quarterly data produce an estimate of 2.4 years. Statistically, the two estimates are indistinguishable.

Direct interpretation is even more difficult for the smaller states and territories of Australia, where local prediction is required for certain planning purposes. The numbers



are too small in such regions for separate empirical forecasts and alternative methods are required.

The Working Group (1988) suggest a simple method for subgroup prediction based solely on the number of cases experienced so far in the local region in question. It is assumed that exponential growth with a known doubling time is a reasonable approximation. That is, suppose  $n_0$  cases have been observed so far and that the desire is to predict the number of new cases  $n$  arising in a future time interval. Essentially, the value to be predicted must be such that the split  $n_0, n$  must be consistent with a binomial distribution with known probability. Exact and approximate confidence intervals are readily obtained.

Owing to the uncertainty associated with the estimated doubling times, particularly when the observed numbers are small, it is important to consider a range of projections associated with plausible doubling times. The approach is illustrated by the results in Table 3 on predictions of future numbers of AIDS cases for the territories and smaller states of Australia (Solomon *et al.*, 1989).

**Table 3**  
**Predictions of future AIDS cases for the territories and selected states of**  
**Australia: 90% confidence limits.**

Number of cases observed to 31 December, 1988 in		1989		1990	
		Doubling time in years 1.5	2.4	Doubling time in years 1.5	2.4
ACT	14	(3,15)	(1,9)	(6,23)	(2,13)
NT	2	(0,5)	(0,3)	(0,7)	(0,4)
Tas	3	(0,5)	(0,4)	(0,8)	(0,5)
WA	52	(20,43)	(10,26)	(34,66)	(14,33)
SA	34	(11,30)	(5,18)	(20,46)	(8,24)
Qld	80	(34,62)	(17,37)	(56,96)	(24,48)

Thus for South Australia which had experienced 34 cases of AIDS to the end of December 1988, it is predicted with approximately 90 per cent probability of being right that between 5 and 18 new cases will be diagnosed in 1989 and between 8 and 24 cases in 1990, assuming the doubling time is close to the national average. If the doubling time for the South Australian epidemic is closer to 1.5 years, then that state might reasonably expect between 11 and 30 new cases this year, and between 20 and 46 new cases next year.

**Conclusions**

This note has aimed to identify some specific ways in which statistical analysis and modelling can contribute to the study of Health Transitions. It must also be recognized that the widespread availability of large packages will never overcome the problems of non-standard data. These will always require custom-built statistical models and are best constructed not after the data have been collected but through an integrated interdisciplinary approach to the design, execution and analysis of studies to investigate health transitions. It is essential that statisticians are included at all stages of such research.

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## 4. The view from anthropology

Shirley Lindenbaum

Contemporary anthropologists, especially those in the field of medical anthropology, work increasingly with investigators in other disciplines. Multidisciplinary research offers a glimpse of the many biological and social factors that effect social change as well as a heightened awareness of the difficulties involved in providing an adequate accounting. As anthropologists study issues of concern to demographers and epidemiologists, our own methodologies come under self-critical review.

Anthropologists are often seen to be skilled interpreters of cultural difference. As Kunitz (1990) suggests, anthropologists examine the culture, ecology, history, and I would add, the political economy, of communities and countries in complex particularistic detail. Such studies, he proposes, can lead to the search for anomalies that, if properly investigated, give meaning to generalizations.

In investigating and interpreting cultural difference, however, anthropologists (as well as demographers) often mistakenly frame that difference in historical terms. The 'modern world' is frequently portrayed as culturally homogeneous, while the world of cultural difference is seen as representative of a set of more 'traditional' pasts. This view ignores the extent to which the many social and cultural forms and practices we encounter in the



present are themselves the products of modern social, political and cultural processes. It overlooks the possibility that these same processes have created the cultural homogeneity we take to be modern and the cultural heterogeneity we project on the past (Roseberry and O'Brien, n.d.).

This cautionary note carries a message as we think about the 'health transition,' or as many speakers at this conference have suggested, the many health transitions. Rather than holding to a model of 'pre-transition' and 'post-transition' societies, we might better view the modern transformation (however we come to define it) as emerging from the constant creation of new expressions of cultural difference, and states of health, along with the redefinition of old ones. Such a view sets aside any underlying assumption of a universal evolutionary sequence in cultural forms and accompanying health states.

The questioning of historical projections upon cultural diversity is part of a larger attempt to abandon oppositional models that are often taken to represent the past and the present. Such dichotomies as primitive versus civilized, traditional versus modern, or underdeveloped versus developed mistakenly suggest a single historical trajectory (Roseberry and O'Brien, n.d.).

Oppositional paradigms not only overlook the extent to which the cultural forms and behaviours we examine are themselves, in part, the products of colonial or post-colonial experience (Roseberry and O'Brien, n.d.), but pose an explanatory choice that leaves little room for theoretical integration. Some theories of modern fertility decline, for example, rely on an oppositional model of change whereby people in pre-transition societies are said to be motivated by aspects of culture (traditions, religious beliefs, and so on), whereas after the transition, fertility behaviour responds to a rationality associated with goals of individual or family achievement thought to be 'culture-independent.' An alternative non-dualistic approach, on the other hand, would interpret the dynamics of population growth, for example in Sicily on the eve of the transition to low fertility, without resort to either traditionalism as an explanation or to a cost-accounting paradigm. The focus instead would be on the way in which local culture and interests interact in response to political-economic changes (Schneider and Schneider, 1989).

Turning from anthropology's dialogue with demography to its encounter with epidemiology, we confront another set of issues. In recent years, anthropology and epidemiology have formed a productive working partnership. As a result, anthropologists have been stimulated to provide more quantitative data, and have come to see that matters of sickness and health are a necessary part of the whole study.

In return, they have contributed to epidemiological studies by 'unpacking' dependent and independent variables, by providing data on the cultural definition of diarrhoea, or cancer, or the perception of different kinds of water, or the meaning of maternal education in particular places at particular times. Anthropological studies have contributed also to the teasing out of such public health categories as 'risk behaviour' or 'non-compliance,' illustrating the variety of collisions that occur between local cultures and the culture of science. One methodological strength of the ethnographic approach is its documentation of human behaviour rather than the mere reporting of what people say they do, shown recently to be very different in nutrition studies or in studies of domestic hygiene (Stanton *et al.*, 1987).

As anthropologists work to achieve greater ethnographic refinement, they raise important issues also about an unquestioning acceptance of the units of analysis. As

Bledsoe's (1990) fine-grained study of the microdynamics of intra-household discrimination shows, an analysis that stops at the household level may overlook striking imbalances in resources distribution. Recent research on household economics is also part of this trend.

Finally, although preliminary ethnographic research contributes to the design of a more appropriate survey instrument, the Rapid Ethnographic Assessment (REA), viewed as a useful tool in multidisciplinary research (Bentley *et al.*, 1988), carries with it a set of dangers that have not yet been well resolved. Proponents of REA have identified some constraints and weaknesses of the methodology. The short period of time allotted for data collection (the necessity of covering three relatively different study-sites in a one-month period in Peru, for example) was seen as a major limitation, as was the difficulty in recruiting local social scientists to undertake the research within the time frame (Bentley *et al.*, 1988).

Additional constraints arise from an epidemiological grid that imposes space and time limits that do not lend themselves to an anthropological analysis of the social forces, historical, economic, political and cultural, that would enable a full accounting of the health matters under investigation. There is little room in epidemiology for the anthropological insight that illness beliefs and behaviours are not fixed entities but are created within changing structures of power, or that illness beliefs are metaphors about socio-political conditions, the metaphors themselves influencing cultural life. The danger for anthropology-in-epidemiology is that the anthropological role will narrow to the mere gathering of different cultural constructions divorced from a full interpretation of cultural difference. Moreover, the view of anthropology as provider of 'cultural' information (beliefs and behaviours) fits somewhat too readily with an oppositional model that culture accounts for the behaviour of, say, pre-(fertility or health)transition populations while behaviour in post-transition societies is motivated by rational self-interest.

The current desire among anthropologists, demographers and epidemiologists, however, to find compatible theoretical and methodological approaches lends a productive tension to our present discussions and promises a richer investigation of health-related problems.

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## 5. What to tell methodologists?

Peter Berman

### Health transitions

The major changes taking place in many countries of the world – the shift from higher mortality to lower mortality situations – are well known. This meeting has indicated that it is important to talk about health transitions, not simply a health transition. There appear to be numerous paths to health change.

These pathways generally have beneficial results, but the changes are not always unambiguously beneficial. Some important negative aspects deserve attention, e.g.: the apparent rise in reported morbidity with mortality decline ('feeling worse?'), tendencies towards commercialization or commodification of health, rising health care costs and responsibilities for families in supporting members' health and illness.

Choice of methodologies and their evaluation should emerge in part from the types of questions being asked. The major ones on the agenda, as I have heard them in this meeting, include:

- a. What are the non-medical/non-clinical factors underlying mortality *and* health change at the individual and household level ... specifically, behavioural, cultural, social and economic factors. Caldwell has called this 'health management'; another term would be the household production of health. How do these factors operate? How can the positive ones be encouraged and the negative aspects discouraged?
- b. What factors affect the way medical technology interacts with individuals and families? How do they operate? What can be done to improve people's knowledge and appropriate use of medical technology?
- c. What can we learn about different societies' paths to health change in terms of political, economic, social, and cultural characteristics, including dimensions of ethics and values. How can different experiences be shared across societies for mutual enlightenment?

This meeting set out to examine whether there was good evidence for cultural, social, behavioural determinants of health and whether they make a difference. Answer ... of course!

### Implications for methodologists

**Avoid the disciplinary extremes of the different social sciences that have characterized earlier efforts**

To over-generalize: anthropologists have often succumbed to rampant empiricism: the data are interesting, specific conclusions correct, but the scope for application is often too limited to be relevant; economists, in contrast, are ardent positivists: their results are interesting, relevant in their generality, but often wrong-headed for lack of grounding in empirical reality.

The middle ground lies in continued striving for appropriate and ultimately quantifiable models of behavioural factors, but with a constant reality check on the empirical validity of concepts and measurements. Modelling should be grounded in observation, empathetic understanding, and careful definition of variables. The

statisticians should get to the field, both mentally and physically; the particularists should shed their reluctance to explore broader implications.

### **Work in interdisciplinary teams**

Health transition studies should be developed by interdisciplinary teams and efforts should be made to keep such collaborating arrangements in place through design, field work, and analysis.

### **Specific areas for methodology development**

- a. Improving measurement and analytical techniques for understanding the 'black box' of health-producing behaviour. Recent examples include introduction of behaviour variables in epidemiological analysis of diarrhoeal disease aetiology and efforts to refine the specification of the health 'production function' in household economics studies. There are many doubts about the relative usefulness of observational studies, recall, and KAP-type interview questions.
- b. Measurement and analysis relating to the behaviour of health care providers and its determinants are almost entirely lacking in developing countries. This includes both the data collection side, as well as developing behavioural models and providers to look at the effects of different policy and management interventions.
- c. Cross-cultural research on the values and ethics relating to health change are important to support understanding of the 'emic' perspective in health development. How is health understood in different cultures and by different social and economic groups? How is this understanding changing? What are the implications for programs like child survival, safe motherhood, control of tropical infectious diseases, etc?



## Chapter 57

# Policy

### 1. Comments on policy aspects of health-transition research

Geoffrey McNicoll

All social scientists tell stories, but anthropologists tell the best ones – those with most human interest and local colour. Let me start by mentioning two. Clifford Geertz, as one of a group of MIT students studying Javanese society in the 1950s, wrote two works that are deservedly seen as classics: *The Religion of Java*, and *Agricultural Involution*. While taking strong issue with earlier Dutch views of cultural obstacles to economic development, Geertz nonetheless drew a picture of the intricacies of belief systems and of interactions between technology and rural social organization that clearly pointed to an impasse. Involution meant precisely that – elaboration without productive outcome; systemic incapacity for economically progressive responses.

A second story: Hildred Geertz, also an anthropologist, wrote in the 1960s a study of the peculiar mental disorder known as Tourette's Syndrome (in South-East Asia, *latah*), in which the sufferer involuntarily blurts out obscene words in inappropriate situations. She interprets the illness, which is relatively common in Java, as a combination of a response to 'idiosyncratic psychic weaknesses, to interpersonal strains of social origin, and to culturally determined ambivalences' – with a clear preference for the latter. Indeed she writes

If it were not for the presence of *latah* elsewhere in the world, one would be tempted to conclude that the reason for its occurrence in Java is self-evident, that its congruence with Javanese culture sufficiently accounts for its appearance there.

Her article beautifully argues that case.

For both stories there is a postscript, added by other hands. Java underwent a political upheaval that removed the radical forces that many had assumed would have been the main hope of agrarian progress. A strong-willed, militarized local administration was imposed, land reform was forgotten, but Green-Revolution technologies were firmly promoted. And peasant agriculture thereupon took off in a most un-Javanese way: a process someone has uncharitably called the de-Geertzification of Java. As for Tourette's Syndrome, a wholly biomedical-cum-nutritional aetiology is now, I believe, agreed upon, one that entirely bypasses the undeniable subtleties and ambivalences of Java's culture.

There is a distinction, an obvious one, between social scientific explanation of a situation, on the one hand, and the basis for amelioration through policy intervention, on the other. The first searches for deep understanding, and luxuriates in complexity; the second searches for what works, and is impatient with detail and the contingent statements that conclude so much of our research. A lot of what seems to have been going on at this meeting has I think been of the first kind.

The distinction is particularly sharp in anthropology, where applied anthropology has had a chequered career. Cultural systems (and I use this term in one of its narrower senses, systems of meanings rather than of institutions) help to make sense of the perceptual world, impose coherences, and establish the common assumptions that underlie voluntaristic

social behaviour. But such systems may or may not prove resilient in standing up to changing external circumstances – say, to new technologies or resource flows. In many respects, one could say that culture in this sense was instrumentally weak, reactive rather than determinative, concerned with putting the best face on things, of interest in assessing the social costs of change after the fact rather than in governing the desirable direction of change. There must be exceptions, where cultural change can lead rather than follow, and detecting these should I think be a primary task of applied anthropology in this domain of health transition.

I am not maintaining, therefore, that medical anthropology is of second-order interest for health policy (although one misses, in this company, some hard-nosed health economists who would say so). Rather, I would assert that, for a policy yield, we need to explore the comparative resilience of different cultural structures in relation to health behaviours. The task seems to be primarily an experimental one.

This said, let me back up a little and look at other disciplinary contributions. We have a desired policy outcome expressed in demographic terms: low mortality, low morbidity. Demography can also (though it rarely does) concern itself with the variances within its favoured distributional categories: variances that have much to do with the immediate perception of health issues by those at risk. And demography has on its agenda the devising of a proximate determinants framework for mortality, on the analogy of the framework that has had such important research and policy effects in the fertility case.

Historical research, with the accumulation of the past statistical record of health, should have much to teach of policy interest. This despite what one might call the Kerala Lesson: that if you want to get low mortality today you should start a century ago. (It echoes the individual-level health advice that you should choose your parents and grandparents carefully.) In history, time is ample; in present-day policy debate it is very short. And the same hodge-podge of social science that 'new' historians routinely draw on – institutional economics, analysis of social networks, identification of interest groups and authority structures, and the various theoretical perspectives on the determinants of social change – are similarly pertinent to contemporary policy research.

There are evident lessons of policy experience: China, for example, not much discussed here, where a highly-effective and in many respects coercive infrastructure worked health wonders in the 1960s and 1970s even as it suppressed economic activity and reproductive freedom. There are also cautionary tales of a specific nature: how societies respond to particular health threats, whether major, such as the 1918 influenza epidemic, or imaginary, such as the swine flu scare of a decade ago. Conducting and compiling such analytical studies seems to me highly valuable policy-relevant activity.

So, to get back to the example of social and economic change in Java that I mentioned at the start: it would be wrong to conclude from it that a blunderbuss approach to development is all that is needed: that, with economic advance, health will be dragged along. There is a measure of truth here, but we should (for policy as well as scholarship) be interested in a finer discrimination, one in which types of institutional change, forms of governance and program structure, and timing of health and mortality change, are identified. There is a strong case here for attempts to develop typologies of health transition. The health sector doesn't have leverage to direct the style of development, but it may have the leverage to attain some sort of optimal design *within* a given style of development.



But disciplines are not a good way of divvying up the research agenda in health transition and health policy. Let me sketch out an alternative: a three-way division as a first cut, each category thoroughly mixed in terms of disciplines.

(1) In the first category I would put what earlier I suggested was the task of understanding health conditions and health behaviours – but not only in terms of cultural minutiae. Included here are the economics of family and community life, and the politics of it: knowledge of local social organization in terms of family arrangements, obligational networks, power relations, and so on. And, of course, the related, interpenetrating ecology of pathogens, and indeed of the natural environment in general. The historical dimension is of special interest here. The policy dimension, however, is not: from the standpoint of this research mode, policy makers and program officials are insufferably coarse and probably incorrigible. They are anyway endogenous, themselves creatures of their situation.

(2) In the second category of the research agenda would be research that starts from the existing lines of programmatic thinking and action, and seeks out improvements at the margin. Sometimes such improvements can be major – the pointing out of bone-headed assumptions or practices that are impeding program effectiveness. In family planning, this work is called 'operations research'. A great deal of it is little more than trivial tinkering. But potentially it can be much more. Field experiment stations like those in Bangladesh and Senegal are a major policy resource for both fertility and health programs.

(3) And there is a third category, one less easily defined. This is research that keeps options open, that looks critically at existing policy thinking and contemplates alternatives, that is concerned with loosening up rigidified thought processes, and with challenging entrenched assumptions of program bureaucracies and professional interest groups. Professor Caldwell has spoken of how fertility and perhaps mortality might be (or even have been) 'talked down' through simply raising the salience of public debate and awareness of behavioural options facing individuals and families. At a higher level (with potentially a greater multiplier effect), policy can perhaps be 'talked into change' by such work. Indeed to the extent research ever does have substantial policy influence (which is rare enough) it is probably through changes in the mindsets of politicians and government officials rather than through the minute particulars of the research enterprise. Unlike disease, ideas are transmitted by miasma not germs.

Each of these three categories seems to me important, and keeping a rough balance among them is necessary for a social scientifically informed policy endeavour. The main risk, if the parallel with fertility research is to be taken seriously, would seem to be the capture of health transition research by health systems, boosting the second category. The agenda of the present conference suggests that the immediate prospects for the first category are in good order. Overall optimism for policy outcomes would be greater if there were an assured attention also to the third category.

## 2. What to tell the policy makers

Robert Douglas

I would first ask the question 'Who are the policy makers?'. What is their orientation and what values drive the system within which they work? In my view, the people who are most influential in the current health environment around the world at present are the two

international agencies, WHO and UNICEF, and the Health Transition program must not ignore the factors which drive these organizations as it undertakes its program of social science research. This is not to imply that the Health Transition program should be subservient to these organizations or should not be totally in control of its own research. But I believe that it is essential that the researchers identify the orientation and values of that system and undertake research that is relevant to its thinking. At the same time, it is desirable that the very institutions themselves come under research review.

Finally, I suggest that although we have few definitive health policies which follow from the social science research that has so far been done, we can confidently tell the policy makers that

- 1: The health care system needs to be studied as a sociological and anthropological whole without prejudice and without prior assumptions.
- 2: We need to know much more about the possible social, cultural and behavioural determinants which underlie the profound differences which we know exist between countries and groups within countries.
- 3: Critical and analytical research is needed into the behavioural, social and cultural elements of current health care systems, in their efforts to attain health objectives.
- 4: Health improvement does not necessarily follow from expenditures on health services: economic growth *per se* probably improves health outcomes. Some health services improve health outcomes, and we need to know which ones.
- 5: Nutrition and literacy are key variables with respect to health outcomes.

### 3. A case study in the development of health policy

Basil S. Hetzel

This case study describes briefly the sequence of events which has led to the adoption of elimination of iodine deficiency disorders (IDD) as one of the health goals for the 1990s. This was made specific by the Joint Health Policy of WHO and UNICEF Meeting in Geneva in January 1989. It follows an earlier resolution of the 1986 World Health Assembly, sponsored by Australia and 22 other countries, calling for prevention and control of iodine deficiency disorders and the feasibility of control in the following decade.

We can distinguish three steps in these developments:

1. The definition of the problem of IDD as of international public health significance
2. The establishment of the International Council for Control of Iodine Deficiency Disorders
3. The establishment of national IDD control programs in countries with severe IDD problems

#### The definition of iodine deficiency disorders as an international public health problem

Recent evidence indicates a wide spectrum of disorders resulting from severe iodine deficiency which puts at risk more than 600 million people in Asia as well as 100 million in Africa and 60 million in Latin America. These iodine deficiency disorders (IDD) include goitre at all ages, with associated impairment of mental function; endemic cretinism characterized most commonly by mental deficiency, deaf-mutism and spastic diplegia and



lesser degrees of neurological defect related to foetal iodine deficiency; increased still births, perinatal and infant mortality (Hetzel, 1983, 1987).

Evidence is now available from both controlled trials and successful iodization programs that these disorders can be successfully prevented by correction of iodine deficiency. The social impact of IDD is great. Prevention will result in improved quality of life, productivity, and educability of children and adults. It is now clear that iodine deficiency is a major impediment to human development. Iodized salt and iodized oil (by injection or by mouth) are suitable for correction of the condition on a mass scale.

A single injection of iodized oil can correct or prevent IDD for three to five years. Such injections offer a satisfactory immediate measure using primary health care services for the millions living in regions where iodized salt cannot be used, until a salt program can be effectively implemented. Iodized oil can also be administered orally through the primary health care system. Monitoring of these interventions is feasible for large populations with modern automated instruments.

### **The bridging of the gap**

It was recognized that there was an enormous gap between the knowledge of the public health problem of IDD and attempts made to control it in Asia, Africa and Latin America. The recognition of this gap led to the establishment of the International Council for Control of Iodine Deficiency Disorders (ICCIDD) in 1985 with formal inauguration in Katmandu in March 1986. The ICCIDD is a global multidisciplinary network of some 300 scientists and public health professionals grouped on a regional basis with six regional co-ordinators in the WHO regions. There is a board of 35 with an executive committee of seven. A series of joint meetings with WHO and UNICEF have been held in different parts of the world with the aim of stimulating attention to the problem. In Africa (Yaoundé, Cameroon in March 1987) a regional intercountry meeting was attended by representatives from 22 African countries with strong support from WHO and UNICEF. The meeting established the IDD Task Force for Africa which has developed a co-ordinated strategy for the first time.

Similar developments have now taken place in South-East Asia with the setting up of an IDD Regional Working Group including WHO, UNICEF and ICCIDD as well as representatives of the eight countries in the region. Global activities are co-ordinated with WHO and UNICEF through the IDD Working Group which reports to the Sub-Committee of Nutrition of the UN Agencies each year. A series of publications have been produced covering technical and more general policy aspects of the problem. A detailed summary of the activities of the ICCIDD is given in the Appendix.

### **National IDD control programs**

The objective of the ICCIDD is the establishment of national IDD control programs in those countries with severe IDD problems. As a result of the steps described above, national IDD control programs are gathering momentum. In Latin America, recent major upgrading of the national IDD control programs has occurred in Peru, Bolivia, with the use of iodized oil on a large scale, and in Ecuador with a new momentum in the salt iodization. In Africa, national programs have now begun in Tanzania and Ethiopia. Zaire and Zimbabwe are about to begin, while preliminary studies are being completed in Kenya, Malawi, Nigeria and the Cameroon. In Asia a new momentum is evident in India, Pakistan, Bhutan and Nepal. Bangladesh is just beginning. Indonesia and China are reappraising their programs with a view to further escalation of effort.

### Lessons from this case study

The following lessons can be drawn from the experience in the control of iodine deficiency disorders:

1. The problem and its solution have to be clearly defined in order to secure attention at health policy level by international agencies and governments in the Third World. This requires a sound scientific base and appropriate technology. It also requires a communication effort that is based on an appropriate presentation of the problem and its solution as pointed out in my earlier paper (Hetzel, 1990).
2. There has been a need for an autonomous body of scientists and professionals dedicated to bridging the gap between available knowledge and its application. It has been pointed out that academics usually remain longer than bureaucrats in their positions so that they are able to maintain persistent pressure on international agencies and Third World governments!
3. It is necessary to work with major international agencies in order to have any significant influence on health policy with Third World governments who look naturally to WHO in particular for advice on health problems.
4. There is a need for research of an operational nature. Studies concerned with productivity, school performance and socio-economic benefits are very important in order to secure attention to the problem by international agencies and Third World governments concerned with human development.

The importance of health as a basis for development was accepted by the Organization for African Unity in 1987. The fact that iodine deficiency is the most common preventable cause of mental deficiency is being recognized. The importance of iodine deficiency in relation to the one-child policy in China has also been recognized.

A 'sharp edge' is required to make progress in the competitive area of health and development!

### Reference

- Hetzel, B.S. (1990), 'Communication and social marketing in controlling iodine deficiency disorders', this collection.



## Appendix

### THE INTERNATIONAL COUNCIL FOR CONTROL OF IODINE DEFICIENCY DISORDERS (ICCIDD)

#### Brief statement of activities 1986-1989

AIM	Since its establishment in 1986 the ICCIDD has accepted that its primary responsibility is to assist other agencies in the development of national IDD control programs;																		
STRATEGIES	<p>To this end it has pursued the following strategies:</p> <ol style="list-style-type: none"> <li>1. A global multidisciplinary network of 300 experts now available for consultation in their regions and countries with the help of six regional co-ordinators;</li> <li>2. Formal links with WHO and UNICEF and other agencies through: <ul style="list-style-type: none"> <li>IDD Working Group (SCN);</li> <li>IDD Task Force for Africa;</li> <li>Regional Joint Intercountry Meetings (Africa, Asia);</li> </ul> </li> <li>3. Publications: including the IDD Newsletter (from 1985); <i>The ICCIDD Monograph</i> (Elsevier, 1987); <i>The Story of Iodine Deficiency</i> (OUP, 1989); the Practical Manuals (in press); and <i>The IDD Brochure</i> (1988);</li> <li>4. Consultancies and meetings for the development of national IDD control programs (more than 20 countries);</li> </ol>																		
BUDGET	<table> <tr> <td>Budget and expenditure 1988:</td><td>\$US</td></tr> <tr> <td>Global organization</td><td>30,000</td></tr> <tr> <td>Publications</td><td>50,000</td></tr> <tr> <td>International meeting</td><td>40,000</td></tr> <tr> <td>Regional programs</td><td>80,000</td></tr> <tr> <td>Total</td><td>200,000</td></tr> <tr> <td>Additional requests for 1989:</td><td></td></tr> <tr> <td>Regional monitoring and information centres</td><td>100,000</td></tr> <tr> <td>Pharmacological studies on iodized oil</td><td>50,000</td></tr> </table>	Budget and expenditure 1988:	\$US	Global organization	30,000	Publications	50,000	International meeting	40,000	Regional programs	80,000	Total	200,000	Additional requests for 1989:		Regional monitoring and information centres	100,000	Pharmacological studies on iodized oil	50,000
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Basil S. Hetzel  
Executive Director  
ICCIDD

## Chapter 58

# Themes and issues for a sociology of the health transition

John Simons

The hypotheses and findings reported in previous chapters represent the main fields of research into the health transition, defined by Caldwell as the epidemiological transition and 'the social and behavioural changes which parallel the epidemiological transition and may do much to propel it'.<sup>1</sup> This chapter reviews some of the themes and issues covered that seem of strategic importance in answering the questions he posed at the outset: how important are the social determinants of the epidemiologic transition? Can a knowledge of the social determinants be used to speed the transition and improve health?

The influence of social factors on health can be illuminated by studies at both the level of society or community, the macro level, and the level of individuals, families and households, the micro level. Studies of both kinds are discussed separately in the following sections.<sup>2</sup>

### The macro-level perspective

An issue of fundamental significance for a sociology of the health transition is the role to be attributed to a society's belief system. On one view, health transitions are a consequence of economic development or public health measures, or of a mixture of both, and changes in belief system are either seen as also among the consequences or ignored. A view that seemed to be more common at the workshop is that it is necessary to understand changes in the belief system in order to understand both economic development and the adoption of public health measures. It is a standpoint in the tradition of Max Weber's *The Protestant Ethic and the Spirit of Capitalism*. Referring explicitly to this issue, Johansson argues that successful development requires cultural change which, when economic and technological resources make development feasible, can initiate it by transforming beliefs about possible and desirable goals and about the means of their attainment. She believes that in order to understand why Japan's mortality transition was so much more rapid than that of England, it would be necessary to examine relevant transformations of belief systems at both macro and micro level in each of these societies. Presumably it would also be necessary to take account of the very different contexts in which these transitions occurred.

The apparent importance of such cultural characteristics for differences in health-related behaviour is demonstrated by Basu, and, for changes in behaviour, by the

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<sup>1</sup> The use of the term 'health transition' was a subject of controversy at the workshop. Some participants had difficulties with this use of a single term to encompass both outcome and cause. Others welcomed the proposed conflation but thought it was not well described by the term 'health transition'. No doubt the matter will be settled over time by the preferences of those who write and talk about the subject.

<sup>2</sup> This chapter draws on the original versions of papers, and on other presentations and discussion at the workshop.



Kunstadters. Using data from household surveys, Basu compares groups from the Indian states of Uttar Pradesh and Tamil Nadu now living in the same physical environment of a slum area in Delhi. Using these surveys together with secondary sources, she also compares each of these groups with the rural poor still living in Uttar Pradesh and Tamil Nadu. She concludes that cultural differences can account for important differences in child care. For example in both urban and rural areas, Tamil mothers were much more likely than those of Uttar Pradesh to work outside the home and to leave young children at home to fend for themselves. On the other hand, Tamil mothers were much more likely to have their babies delivered in hospital than were mothers from Uttar Pradesh.

The Kunstadters studied mortality and morbidity changes in several ethnic groups in northern Thailand up to about 1980. Although the communities studied were all within a radius of 50 kilometres, there were differences of around 50 years in the onset of decline in infant mortality rate. Major declines were achieved before the availability of modern medical care in some communities, occurred very rapidly in association with improved access to care in some other communities, but did not follow improved access in yet others.

The Kunstadters also report a study of mortality differences and changes in a single ethnic group in Thailand, the Hmong. The different Hmong communities studied were diverse in their environmental and economic circumstances but very uniform in their cultural patterns. According to the findings, a decline in infant mortality of some 50 per cent in recent decades cannot be explained by any of a number of factors widely believed to be important determinants: greater use of family planning; use of doctors or midwives instead of traditional birth attendants; more use of vaccines; higher income; increase in the proportion of Hmong women attending school; improvements in the status of women; or improvements in such infrastructural or community-level factors as the installation of protected water supplies. Other conventional explanations, as yet untested, include a major reduction in malaria mortality, but another possibility mentioned is the Hmong's adaptability, shown in their rapid acceptance of many new crop plants and new cropping methods.

Although improvements in health may often be an unintended consequence of the pursuit of other social goals, the strength of a society's commitment to improvements in health seems likely to have a major effect on the speed with which they are achieved. Referring to the history of urban health in Europe in the 19th century, Woods says that by the 1900s, national and local governments had accepted the responsibility to provide and monitor basic health facilities in the general environment and the workplace. The goals were a safe and sufficient water supply, effective sewage and refuse disposal without pollution, and clean and paved streets.

A particular issue of obvious importance is the significance of public commitment to child survival. The van de Walles consider the role of increasing commitment to child survival as an explanation of the infant mortality decline in Europe (mainly England and France) from the end of the 19th century. They conclude that by the end of the century, and perhaps much earlier, the bourgeoisie had come to regard their children as precious and irreplaceable, a view which may have diffused to the lower classes. At the same time, the survival of the child had become a matter of public concern. High mortality rates were seen as a sign of growing degeneracy. The child became established as an object of medical specialization. Public sanitation and personal hygiene became important goals. The State was assuming control of the milk supply. The van de Walles argue that there was an



interaction between the recognition by the State of a role in the preservation of the infant's life and the technological progress that made the decline of mortality possible.

The importance of government commitment to the reduction of infant mortality in developing countries is evident in Palloni's account of infant mortality declines in Latin America in the period 1900-1985. Change in the pattern of mortality over time, by level of economic well-being and by cause of death, seems to indicate that exogenous shifts were probably reflecting broad social interventions, partly independent of the level of economic well-being but strongly associated with government commitment to the improvement of health. Referring to the achievements of Chile, Costa Rica and Cuba in reducing infant mortality, Palloni notes the well documented history of centrally planned and organized health interventions in these countries, and the importance of government commitment in maintaining the continuity of the interventions, regardless of trends in economic well-being.

How is government commitment generated and sustained? One factor is a polity that makes a government responsive to public demand. Nag invokes this factor to explain why infant mortality rates are lower in Kerala than in West Bengal, despite the greater economic development of the latter state. Using such indicators as the percentage of the electorate voting in State Assembly elections, he argues that, compared with West Bengal, the rural people of Kerala are more politically aware: more conscious of the possibilities of achieving valued goals by exerting group pressure on appropriate agencies. Among factors held to explain Kerala's greater political awareness are the way caste organizations pioneered the mobilization of the peasantry against an oppressive social order, the Communist Party's contribution to this mobilization, and the fact that Kerala surpasses West Bengal and the rest of India's states in literacy and enrolment in primary schools.

According to other commentators on Kerala's remarkable success in controlling infant mortality, the direct effects of literacy on health practices have been more important than its indirect effect in facilitating political consciousness. Other important factors mentioned were Kerala's denser population (making it easier to provide health services to the majority) and its emphasis on preventive rather than curative medicine.

The idea that mass education has a powerful influence on survivorship is supported by national-level studies. The nature of the relationship is less clear. As Cleland remarks, studies at this level are not totally convincing owing to the strong correlation between economic development and educational provision. He reviews the abundant micro-level evidence of the relationship between the duration of mother's education and child survivorship, but points to evidence of the attenuation of educational differentials as national levels of literacy rise.

Caldwell *et al.* emphasize the limitations of micro-level studies as means of obtaining evidence on macro-level effects, illustrating the point by referring to evidence that children usually have a greater chance of survival when they are born to an uneducated mother in a highly educated society, than when they are born to an educated mother in a largely uneducated society. According to these authors, research seems to indicate that the impact of education on the behaviour of future mothers is produced less by what it teaches than by its effects on self-image and status. If so, they argue, the effects may also be produced by other influences, such as the general nature of the society. This point is reinforced by other evidence. Referring to her village study in Kerala, Sushama emphasizes the importance of high literacy levels to women's health-related behaviour, but attributes the high status and



autonomy of Kerala women to the tradition of matriliney and the spread of Christianity. Ewbank and Preston refer to very large cross-sectional variation in mortality associated with ethnicity and religion. For example, mothers of Chinese origin appear to enjoy unusually low child mortality wherever they are located.

A factor that seems very likely to affect the speed of transformations is the success of primary health care services in accommodating to the indigenous culture. For example, Widyanthoro and Sarwono describe the problems posed in providing birth control services to young women in Indonesia by the gulf that can exist between the culture of the clinic and that of the host community. Higginbotham and Connor suggest a number of criteria which could be used to assess the degree of accommodation and thus the degree to which services make themselves permeable to community expectations and are able to mobilize community support. For example, one proposed criterion is the extent to which services correspond with culturally identified illnesses to which community members themselves assign importance. Another proposed criterion is the extent to which the service takes account of indigenous systems of health care. The authors suggest that such criteria, together with measures of coverage and other indicators of effectiveness, could be used to assess the contribution of cultural accommodation to health transitions. It would be important to take into account differences between cultures in pre-transition attitudes. For example, Caldwell *et al.* attribute the readiness of Sri Lankans to use modern health services to the fact that the society was sensitized to detect illness and to seek the help of healers by one of the most highly developed traditional health systems in Asia.

The stress on cultural accommodation would be supported by Das, who is opposed to programs that attempt to impose good health on populations. She argues for a communicative rather than an imperative style, and would like the priorities of the government to conform not to the prescriptions of the medical profession, nor to the interests of the family or local community but to the felt needs of the informed individual. Not everyone shares this view. For example, Raharjo and Corner are sceptical about the prospects of relying on felt need among poor households as a stimulus to demand for health care, especially preventive care. They suggest that felt needs may need to be artificially created; for example, by making a completed course of immunizations a prerequisite for school enrolment.

In the event, inadequate cultural accommodation appears to be a prevalent deficiency of health services. Key features of Gaisie's description of the development of services in the countries of sub-Saharan Africa would apply to many countries in other regions. New administrative, political and economic structures were superimposed, he says, on traditional structures and belief systems. The consequence is the coexistence of two types of health service: a traditional one, as an integral part of the prevailing social system, and a modern one at the periphery. In rural areas, the traditional health service is usually the only one available. Gaisie recommends collaboration between the modern and traditional services to enable the former to cope with the ills of the psyche (for which people seem inclined to choose the traditional system, when they have a choice) and to enable traditional healers to acquire modern diagnostic and therapeutic skills. A common instance of attempts to achieve the latter aim in African and many other countries, is the training of traditional midwives. Nations describes a case of local communities taking the initiative in establishing such schemes. In a state in north-east Brazil, groups of community leaders

successfully pressed to have their indigenous midwives trained by the university maternity hospital.

That countries need not be wealthy to secure health transitions is shown by what some countries have achieved while they remained relatively poor. Caldwell points out that Kerala and Sri Lanka have life expectancies close to those of Western countries but per capita incomes only 2–3 per cent as great. Also relevant is evidence of the heterogeneity of survivorship within countries. For example, life expectancies at birth for females varied among Indian states by over 25 years at the end of the 1970s and among Chinese provinces by 13 years in 1984 (Ruzicka and Kane). However, health has its costs. The progress of health transitions is dependent on the availability of material resources and their deployment in ways that provide the population as a whole with adequate sustenance and the benefit of effective health technology, preventive and curative. In many countries, shortage of resources or inequities in their distribution are the most obvious obstacles to progress.

For example, Nations blames the precarious health of poor Brazilian children on the Federal Government and the health establishment. The former, she says, with an immense foreign debt and a startling rate of inflation, has no money to spare for health programs. Physicians promote high-technology services that either are not needed or benefit relatively few patients.

Often a country's place in the international economy seems to be an important part of the problem. Millard *et al.* refer to various studies for evidence that infant mortality is highest where living standards are lowest and, applying the world-systems perspective of Wallerstein, see high mortality as ultimately a consequence of poverty induced by the processes of the world economy. For example, the very high rates of infant and child mortality in Malawi are seen as linked to the inadequacy of the family's food supplies, and this inadequacy is in turn attributed to such factors as the effect on food prices of the government's agricultural policy and world food prices.

Writing about sub-Saharan Africa, Gaisie says that the heavy dependence of countries in the region on one or a few commodities makes their economies vulnerable to international business cycles and crises. The recession of the 1970s, aggravated by the energy crisis, led to a slowing down or stagnation of mortality decline as the growth of gross domestic products slowed, becoming negative in the poorest countries. Other major obstacles to the progress of health transitions in the region were high rates of population growth, low levels of food production, inflation, and extravagant use of public funds on military equipment. According to Gaisie, further reductions in mortality levels cannot be achieved except by modifying conditions that affect exposure to disease and improve resistance to it.

UNICEF and others have claimed that the health of the poor in developing countries is adversely affected by macro-economic adjustment programs, which have been increasingly common in developing countries, especially those in Latin America and Africa with relatively large international debts. Behrman and Deolalikar argue that the evidence presented is not very convincing, and they urge that more systematic and more careful research on the subject be undertaken, for two reasons. The first is that if the UNICEF position is in fact correct, it would be desirable to have evidence that convincingly identified the policy changes that would have high returns in ameliorating the negative effects of adjustment policy. The second reason is that if the UNICEF position is wrong, acceptance



of it by policy makers may be counter-productive, by encouraging them to focus on ways of lessening the relatively short-term consequences of adjustment at the expense of attention to the underlying, more persistent, and more basic health and nutrition problems.

Of course, wealth too can pose risks to health. Referring to the transformation in the disease profile of the Pacific Islands over the past three decades, Zimmet *et al.* describe how communicable diseases have been replaced by a near-epidemic of non-communicable diseases, diseases related predominantly to life styles adopted during the rapid economic development and urbanization of the region since the second world war.

### The micro-level perspective

The importance of society's commitment to child survival was considered in the previous section. This section starts with the subject of commitment to child survival at the level of parent or household. The contrast between the two levels is well described by the van de Walles' distinction between 'the public child and the private child'.

The literature on parental commitment to child survival reveals different perceptions. For example, reporting on a study in Gujarat, Visaria *et al.* refer to a fatalistic and almost unquestioned acceptance of childhood illness and even of child mortality among a major segment of the population. A very different image is presented by Cosminsky's account of mothers' attitudes on a Guatemalan plantation where almost all the workers lived at subsistence level. She says the mothers went to great lengths to maintain the health of their families, despite economic and cultural constraints. They were neither placid nor fatalistic but active participants who invested much time, energy and money in health-seeking activities. In contrast with these broad characterizations, there is the report quoted by Cantrelle and Locoh of the findings of a study in Bamako: that within the same general cultural framework and in the face of abject poverty, subtle differences in maternal attitudes resulted in some children thriving while others suffered varying degrees of malnutrition.

The importance of paying attention to variation among households in their commitment to child survival (among other sources of variation in child care) is emphasized by mounting evidence that, within communities, a high proportion of child deaths is often concentrated in a small proportion of households. Das Gupta offers a vivid example from results of research on a wide range of possible determinants of child mortality in 11 villages in rural Punjab, a state with a relatively high level of infant mortality despite the fact that its levels of nutrition and income are superior to those of any other Indian state, and its levels of literacy and availability of health services are superior to those of most other states. One of the most striking findings was that 13 per cent of families accounted for 62 per cent of child deaths. Das Gupta points out that this clustering might be explained by genetic frailty or other unmeasured factors but, from the analyses of data on the mother's child-care practices, she concludes that most of it is likely to be the result of inadequacies in the basic abilities and personality characteristics of the mother, independent of education, occupation, income and wealth. She mentions that extensive participant observation had revealed that women who had experienced multiple child deaths were often less resourceful and organized than other women in caring for their living children and in running the household.

Even the most committed parents need a stock of sound health-related beliefs if commitment to the survival of their children (or of the parents themselves) is to be expressed in ways that actually promote survival. In fact there is abundant evidence of the



existence of unsound health beliefs. For example, Shariff reports a belief widespread in Gujarat that children should catch measles at least once because they would then be possessed by the goddess Mataji; to seek medication would be to risk her displeasure. Cantrelle and Locoh review a variety of hazards to health, including female circumcision, sustained by belief systems in West Africa. Referring to the results of a survey conducted in several villages in Bangladesh, Bhuiya *et al.* report that the level of local knowledge about hygiene and major childhood diseases was very poor, and that any attempt to reduce the incidence of diarrhoeal diseases in the area could not be expected to be effective unless adequate emphasis was given to improving the knowledge of community members.

It is of course important to avoid attributing to unsound beliefs what are in fact the consequences of material constraints. The study by Streatfield *et al.* of the urban poor in Jakarta found that beliefs about the causes of major infectious diseases did delay the seeking of appropriate treatment. However, high levels of morbidity in the study community were largely due to the poor environment and related conditions, and resort to professional health services was inhibited by considerations of cost. Raharjo and Corner suggest that in general, under-use of curative health services is primarily a consequence either of their poor quality or of people's inability to pay for services, rather than cultural barriers; the latter are more important in the case of preventive care.

Studies of the effects on mortality of change in personal health care practices are uncommon. Ewbank and Preston demonstrate a way of adding to knowledge of the subject by their test of the hypothesis that behavioural change, based on public education, was responsible for a major part of the large declines in infant and child mortality in the United States during the period 1900-1930. Their study of the medical and public health literature of the period, together with an examination of social differentials in trends in child mortality, plausibly suggest that personal health practices, especially those which reduced exposure to pathogens, were a major contributor to mortality decline.

It is a reasonable assumption that an inadequate understanding of how to promote child survivorship is more likely to be found among parents who are uneducated than among those with some education, and there is no shortage of micro-level statistical evidence to support this view. Cleland reviews the evidence from the World Fertility Survey and other sources on the strong statistical relationship between years of mother's education and child survivorship. From the very start of primary education, each additional year within the formal school system is associated with a fall of 3-5 per cent (net of material advantages associated with education) in childhood mortality. Cleland argues that, because a few years of primary schooling are usually insufficient to endow women with particular academic skills like literacy or numeracy, it is unlikely that these skills are important to the explanation of the effect of education on survivorship. So how does education have its effect? From the assembled evidence, he infers that the observed association is unlikely to be the result of the formal content of schooling, or of improved health knowledge, or of improved domestic hygiene, or of different valuations of children because of their birth order, timing or sex. He concludes that education probably has its effect by engendering attitudes which encourage mothers to make more use of modern health services and remedies.

Caldwell seeks explanations of the mechanism in the synthesis of findings of research in Nigeria, India and Sri Lanka. A study in a Nigerian village with little access to health services suggested that the major reason for a substantial differential in child mortality



between educated and uneducated mothers was that the former devoted more of their time to child care, and were more insistent on directing how other care was managed. Research in South India suggested a number of ways in which mothers with schooling might affect the survival chances of their offspring: these mothers were more likely to make such children rest; more likely to ensure a better distribution of food within the household and to insist that food be purchased from the market during the seasonal lean period; more likely to draw attention to illnesses and more likely to make effective use of health services.

The assumption of most research on the effect of mother's education on child survivorship is that what has to be explained is the effect of education. Another possibility is that the main effects are a product of attitudes or other characteristics transmitted to the mother by her family of origin. It does not seem implausible to suppose that families unusual enough to be in the vanguard of those who send females to school would be unusual in their own attitudes to child care. The findings of the study described by Das Gupta, mentioned above, include some that are relevant to this point. Of four status variables – caste, per capita income, land ownership, and exposure to television – caste alone had a significant effect on survivorship, and appeared to have its effect because membership of a higher caste was associated with better child-care practices, even after controlling for income and maternal education. This suggests that high-caste families who have their daughters educated also endow them with attitudes likely to have a beneficial effect on child care.

Probably the most common group of propositions about the determinants of child survivorship are those concerning the role and status of the mother. It is widely assumed that a major impediment to child care is limitations on women's power to give their children the care they need, limitations imposed by low status within the family and minimum influence on the allocation of resources.

Sometimes mother's education is seen as having its effect on survivorship by an influence on the mother's status. Caldwell *et al.* report that in south India, educated mothers are much more likely than are uneducated mothers to be allowed by illiterate parents-in-law to take a sick child to the health centre, and more likely to return if the treatment is not effective.

Employment outside the home also is said to enhance women's status and power to influence child health. On the other hand, as Basu reports of the Tamil mothers in the study mentioned earlier, working outside the home may have the effect of reducing the mother's involvement in child care.

Referring to time allocation studies, Popkin and Doan say these have shown that the demands of domestic responsibilities as well as participation in the labour force restrict the time women have available for activities that promote child health. For example, a study in the Philippines found that the time involved in obtaining prenatal care was the chief deterrent to its use. Studies of the relationship between women's work and child nutritional status show, they say, that the effect on nutritional status is determined by the conditions of employment and the level of earnings. For example, it is often supposed that the conditions of employment in farming work are compatible with child care, but some studies have shown that this supposition can be incorrect. One reason why the purchasing power of earnings is important is that it determines the price and quality of substitute care. The limited research on hypothesized links between women's employment outside the home, their status and power, and determinants of their own and children's health suggests that

such links can be identified. However, Popkin and Doan make it clear that to establish the links requires that research be attuned to a variety of considerations that are often ignored.

An especially poignant consequence of women's limited power and status is revealed in Bledsoe's report of the often severe discrimination experienced by stepchildren and foster children in Sierra Leone. She believes the problem is likely to worsen as deteriorating economic conditions encourage women to try to increase their sources of support by bearing children by different men.

### Methodological issues

According to Palloni, references to *the* health transition may evoke an image of inexorable progress along a unique route from high to low mortality. To counter such an implication, he refers to properties of transitions in progress in Latin America. First, there was not a unique route but a variety of them. He commends the construction of a typology of transitions as a means of discovering the underlying determinants of the variety, and of the factors that initiate health transitions. The outcome may reveal, for example, why Argentina, a forerunner in Latin America's health transitions, ranks no higher today than relatively backward countries; while Chile, which had 'primitive' mortality levels in the 1900s, now ranks amongst the countries with lowest infant mortality. The second relevant property of Latin American transitions he identifies is that, in contrast to the experience of the developed countries, these transitions are vulnerable to factors that cause them to be uneven rather than continuous and to slow down rather than accelerate. For example, there were the reverses and slow-downs of mortality declines in the 1970s and 1980s. The social transformations that allow mortality levels to decline independently of living standards have not yet been experienced. In fact the relationship between the two has become closer. Social differentials in mortality have often been exacerbated rather than attenuated; though not where targeted interventions have been used to sustain health transitions.

Another methodological issue discussed at the workshop was the relationship between the health transition and the fertility transition. Commending the idea of linking social research on the two transitions, Potter refers to a number of features the two have in common. For example, families are the mediators of change in both, the health service has an important role in both, and in both, a strong influence is exerted by parental education and shifts in the role and status of women.

While researchers in each field may well agree they have much to learn from experience in the other, they might be sceptical of the prospective value of integrating the two fields, especially given, as Potter himself puts it, that '...people no longer believe that there are easy generalizations to be drawn about the relationship of fertility to development.' Others would be sceptical on other grounds. For example, the Kunstaders suggest that fertility is analogous to an infectious disease in which there is only one agent, and one kind of vector, one which does not operate effectively except in a narrow range of such circumstances as the age of the partners. They say that this does not seem to be a good model on which to base an understanding of the causes of mortality.

On the other hand, Palloni insists that the Latin American experience offers strong substantive reasons for studying both transitions simultaneously. The strength of cross-sectional associations between infant mortality and fertility has grown stronger rather than weaker, and there is little doubt that fertility reduction has a small, but not negligible, direct effect on levels of infant and child mortality.



It appeared to be generally assumed at the workshop that mortality and morbidity change together and that therefore measures of mortality change are also indicators of morbidity change. As Ruzicka and Kane maintain, there are as yet no suitable substitutes for infant mortality and life expectancy at birth as objective measures of a population's health status. However Riley argues that there were in fact two health transitions in Western experience, a mortality transition which started in the 18th century and a morbidity transition, and that they had moved in opposite directions. Mortality declined, but morbidity, measured as time spent in ill-health, increased. The probable cause, he says, seems likely to have been the effects of mortality reduction on population composition; people increasingly survived the diseases and injuries they suffered, but increases in the rates at which episodes accumulated contributed to higher morbidity. Owing to improvements in protection from diseases and in control of the duration and gravity of illness, the inverse association with morbidity and mortality was unlikely to be permanent.

The source of much of the material discussed at the workshop was studies of cross-sectional associations. This method was the subject of some adverse comment. Ruzicka and Kane point out that cross-sectional relationships established between demographic phenomena and socio-economic and other variables do not necessarily imply that similar relationships exist over time between the same variables. With a related problem in mind, Kunitz proposes that *historical and cultural explanations are a means of avoiding types of generalization that, he says, misrepresent reality and give misleading policy indications.* Using examples that include the contribution of different colonial heritages to mortality differences between Latin America and Anglo-America, he points out that such effects cannot be revealed by generalizations based on GNP, physicians per 1000 population and other common indices of economic development. It clearly is important to recognize that attempting to generalize about the conditions that explain mortality differences is not an alternative to accounting for the history of these conditions. The value of cross-sectional generalizations depends, among other things, on the merits of the theory that guides the selection of variables used and the interpretation of results. Particularistic explanations contribute to these theories, but also invoke them.

A number of recommendations were made on measurement strategies during the workshop: that much more emphasis should be given to the collection and analysis of data on morbidity and its social and biological concomitants; that procedures for collecting morbidity data should be based on detailed knowledge of the particular culture; and that there should be more interdisciplinary and multidisciplinary investigations, including more use of anthropologists to help epidemiologists and others ensure that their perceptions matched the cultural realities of the populations studied.

The study of the processes of health transitions among migrants and minority populations was advocated, since they provide research opportunities that are not so readily provided by the general population.

During a discussion of methods of data analysis, it was argued that there should be a greater emphasis on multivariate analysis of survey data, combined with cross-national comparisons. Other strategies recommended include the application of statistical modelling to disease epidemics, the use of recently developed statistical models that can cope with different levels of aggregation, and the use of secondary analyses of large-scale surveys to identify tasks for ethnographic surveys.

Findley proposes the development of 'interactive contextual models' of the health transition. These models would show how changes in the health-seeking behaviour of the individual are related to the interplay of social, cultural and individual factors. The aim would be to make explicit the targets for policy intervention.

## Policy issues

During discussion of particular health problems, a variety of important research issues were identified. One of these was the social determinants of women's reproductive health, in contrast to a narrow focus on the determinants of maternal mortality. Another was the social processes which lead to change in risk factors for non-communicable diseases, such as the social processes which had led to a reduction in cigarette smoking in some countries. The problems involved in controlling diarrhoeal diseases were considered. The research issues identified included indigenous perceptions of these diseases and of oral rehydration therapy, and the evaluation of attempts to change these perceptions by the use of mass media.

A discussion of the problems involved in controlling Acute Respiratory Infection emphasized the need for research that might reveal ways of increasing the capacity of parents and local health workers to recognize severe attacks and take appropriate action. Another discussion concerned a category of morbidity and mortality which is certainly socially determined, affects large numbers of people, but has received little attention from public health agencies: deprivations, injuries and deaths caused by violence. Contemporary forms of AIDS research were reviewed. It was agreed that most research focused on sexual behaviour and vulnerability to AIDS rather than on its social consequences, though the latter would be of great significance. The rapid spread in the Third World of modern medicines and other medical products was discussed. It was agreed that this phenomenon, the forces behind it, and its consequences (good and ill) warrant careful study. There was also interest in studying traditional practitioners, as a means of helping to establish collaboration between them and modern practitioners.

Another broad issue of policy considered was the relationship, actual and potential, between the social science community and the community of those responsible for health policy, who include the staff of international agencies, representatives of national governments and leaders of special projects. A difference in priorities was noted. Researchers are drawn to the study of complex interrelationships and are interested in long-term developments. Policy makers, on the other hand, are inclined to demand simplicity and quick results: 'magic bullets'. If policy makers are to make more use of social scientists' work, compromise will be required. Social scientists would need to make their recommendations simpler and more specific, and to express them in terms that make more sense to policy makers. Various ways of promoting closer collaboration were suggested, such as involving policy makers in the design of research projects and involving social scientists in the establishment of program targets and the evaluation of performance.

Some participants had reservations about the 'service' role of social scientists. It was argued that the proper functions of social scientists are to contribute to the knowledge base and to provide constructive criticism of policy and its implementation, from a standpoint which recognizes that health issues cannot be divorced from political issues. It is therefore important for social scientists to maintain their independence from policy makers. Others argued that the dialogue with national and international agencies need not imply any loss



of independence or of power to criticize, and that it is important for social scientists to try to get their ideas adopted.

Another view was that change can, and often does, occur in ways that bypass formal institutional frameworks. Changes in public perceptions of health and in consciousness of health problems may be a vital factor in promoting health transitions. Such changes could be promoted in a variety of ways.

## **Conclusion**

How important are the social determinants of the epidemiologic transition? It seems clear that the onset and course of transitions are largely determined by social factors, including those which govern the distribution of material resources. Can knowledge of the social determinants be used to speed the transition and improve health? Much of the work discussed at this workshop, and much that was not discussed, supports the view that knowledge of the social determinants is already making a powerful contribution to the knowledge required to achieve good health at low cost, and is well equipped to make further contributions. Variability in the deployment of this knowledge is itself a social phenomenon which social scientists help to illuminate. In its contribution to public consciousness of the possibilities of, and means of achieving, better health, a sociology of the health transition may well have an increasing influence on the behaviour it studies.

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